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ORIGINAL ARTICLES.

ABDOMINAL SECTION FOR TRAUMATISM, WITH REPORTS OF FIVE CASES.

Read before the Philadelphia County Medical Society, on January 26, 1887,

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The term "abdominal section for traumatism" is meant to include those cases where the operator deliberately opens the belly, or greatly enlarges an existant wound for the purpose of discovering intraperitoneal wounds, and, if they are present, repairing them as far as possible, together with more or less final cleansing of the peritoneal cavity. Such cases as those in which wounds of prolapsed viscera are simply repaired, and the parts returned to the abdominal cavity, are not included. My excuse for this paper is, that I have been so fortunate as to be associated as an assistant to more than one-half of all the cases that have occurred in Philadelphia. In four of the cases I have been the assistant, and in three the care-taker also. These four cases have been treated in the Pennsylvania Hospital. I had at first expected to read merely the history of these cases, and make a few remarks, but the matter grew so interesting that I determined to make a study of the subject, and I believe that I have canvassed the literature of the world. I must express great obligations to the gentlemen who now permit me to report their cases for the first time, and to Dr. Billings, of Washington, who had translated for me the reports of two Russian cases. I have used the libraries of the College of Physicians and Pennsylvania Hospital, and have found the *Index Medicus* of great service. I have prepared a large table, which contains a mine of information. It represents an abstract of every case which I have been able to find in the literature of the subject.

I shall, in the first place, read a few statistics derived from the table. The total number of cases is 57. Of these, 36 died and 21 recovered: mortality, 63 per cent.

These 57 cases were done by 42 operators, viz.: 23 United States operators did 35 operations, with 11 recoveries and 24 deaths: mortality, 67 per cent. Nine English operators did 10 cases, of which 3 recovered and 7 died: mortality, 70 per cent. Two Australian operators did two operations, with 2 deaths. Two French operators did 2 operations, with 2 deaths. Two Russian operators did 2 operations, with 2 recoveries. One German and 1 Swiss each did an operation, with success. One Italian operator did 2 operations, with 2 recoveries. Seven operations have been done in Philadelphia by 5 operators, with 2 recoveries and five deaths. Five of these have been performed at the Pennsylvania Hospital by 3 operators, with 2 recoveries and 3 deaths.

Of the 57 tabulated cases, 38 per cent. were for pistol- or rifle-shot wounds; 35 per cent. for stabs; 17 per cent. for ruptured bladder, and 10 per cent. for ruptured intestine.

Operations were done according to years as follows: 1862, 1; 1876, 1; 1879, 1; 1882, 1; 1883, 7; 1884, 5; 1885, 13; 1886, 29.

In every case which died after operation, lesions certain to cause death, if uninterfered with, were found. One case of penetrating wound was opened, in which no visceral injury was found; it recovered.

The first case of abdominal section for traumatism was that of Walters, of Pittsburgh, for ruptured bladder, in 1862. The first successful case was the same. The first case after Walters' was that of Heath, in 1876. The first recovery after Walters' case was that of Dr. W. O. Roberts, done for stab wound, August 28, 1882.

The sex was reported in 56 cases: males 52; of this number 33 died, and 19 recovered. There were 4 females, of which number 2 died and 2 recovered. Four were negroes, all males; 1 recovered and 3 died.

The age was reported in 46 cases, the oldest being 58 years, and the youngest 7 years. The ages ranged as follows: One each 7 and 8 years old, both died; 11 between 10 and 20 years, 4 recovered and 7 died; 15 between 20 and 30 years, 5 recovered and 10 died; 9 between 30 and 40 years, 5 recovered and 4 died; 1 each 53 and 58 years, both died; 2 57 years, 1 recovered and 1 died.

The indications for abdominal section for traumatism are in many cases very clear; in others, with only our present knowledge, exceedingly obscure. Taking up the consideration first of wounds, it seems to me that, with what we already know, the operation is clearly indicated in every case where penetration of the abdominal cavity is proven, and with fair surroundings it becomes one's duty to open the abdomen and search for wounds, for there are no omnipresent symptoms which invariably indicate intraperitoneal wounds, even when extensive. With reference to the cases suitable for operation, I would

say that, besides gun-shot wounds, stabs, etc., which have already been operated upon, I conceive that in the future many other traumatic conditions will be subject to interference by section, such as rupture of the stomach, gall-bladder, spleen, or kidney, ruptured blood-vessels, various hæmatoceles, etc. Dennis, of New York, had a case in which he opened a penetrating stab wound of the abdomen. He found, besides the injuries, an intussusception evidently caused by the violent peristalsis excited by the point of the knife touching the intestine, and I therefore conceive the possibility of intussusception without wounds. In this paper, no consideration is paid to the effects of traumatism upon diseased organs, such as ulcerated stomach or bowels, or upon the pregnant uterus or its diseased appendages, or perforating typhoid ulcers.

I shall consider the subject of diagnosis as a whole, with the exception of that of ruptured bladder, which I shall take up later. The diagnosis of penetrating wounds of the abdomen is occasionally very easy—occasionally exceedingly difficult. Where there is a pistol-shot wound of the anterior wall of the abdomen and a probe can be inserted, or where there is extravasation of fæces, the diagnosis is easy enough. Emphysema is given as one of the best symptoms of perforation of the intestine. I regard it as a poor one. One of the cases occurring in the Pennsylvania Hospital presented marked emphysema of the abdominal walls without injury to the lung or intestine. Injury of the lung may give rise to emphysema, which may be mistaken for that due to a wound of the intestine. Diminution of the liver, dulness due to the escape of flatus into the abdominal cavity is another symptom, but this is fallacious. Shock is usually marked, but in some cases the patient is not at all shocked. Instances are on record where patients have walked long distances, and yet, on opening the abdomen, wounds of the intestines have been found. One man did not even know that he was shot until he had walked some distance to his home—yet he had numerous intestinal perforations. Of course, vomiting of blood and the passage of bloody stools are good signs, but they are not always reliable. The symptomatology of penetrating wounds of the abdomen is very obscure, and we should like to have some light thrown upon it. Of course, a wound through the back is more difficult to diagnose than one from the front, and frequently the diagnosis can only be made by incision. Even where the ball is found lying under the skin, you cannot be sure, for it may have passed around the abdomen. The most interesting class of cases is that in which there has been a blow or injury upon the abdomen and we suspect rupture of the intestine, the spleen, liver, or blood-vessels. These are most difficult cases to diagnosticate, and I predict that in the future we shall open many abdomens in order to determine whether or not these conditions are present.

In regard to the surroundings under which one should operate. In a metropolitan hospital surrounded by every convenience, I think that the majority of cases should be operated upon. In cases where injury to the gut is known to have occurred, and in many cases where it is suspected, it is our duty to operate. In the country and in unskilled hands only those cases which are the most desperate should be operated upon, unless they can be removed to some centre.

If the patient appears to be coming out of shock, he should be allowed to do so as far as possible. Shock from hæmorrhage is, of course, the worst. Where there is extravasation, the shock will be kept up, and under such circumstances etherization and removal of the cause would be the best way to overcome it. The preparation of the patient should be by judicious treatment and thorough cleansing. I shall not now go into the subject of antisepsis or asepsis, although I hold positive views of their great value. Everything should, however, be surgically clean.

Where there is a wound of the anterior wall of the abdomen, first prove perforation by cutting down to the peritoneum. That should be a sufficient warrant for section. In wounds of the back some judgment must be exercised. The incision should, I think, in almost every case be median. In the majority of the cases recorded in the table, and, I think, in nearly all the successful cases, the incision was median. In several instances where section has been done for a special purpose, such as removing an injured spleen, the incision has been made to one side of the median line. In one case of stab wound which I saw, the original wound was enlarged and gave rise to great difficulty in the subsequent steps of the operation. One wound was overlooked in that case, which error, I think, was largely due to the position of the incision. The length of the abdominal wound is to be governed by the circumstances of the case. It may extend from below the ensiform cartilage to the pubes. There is no harm in a long wound if it be properly treated. After opening the peritoneum, note carefully the abdominal contents. If we find fæces, we are encouraged to prolong the search until the wound is found. If there is blood, we should look for the vessel injured. The search for wounds should be thorough and systematic. In most of the cases where wounds have been overlooked, it has resulted from not making a systematic examination. We should begin at the entrance of the œsophagus into the stomach, if it is possible to reach that high, go over the stomach and all the intestines, examine the mesentery, the rectum, and bladder, and look at the spleen. Unless this is done, wounds will sometimes be overlooked, and even with apparently the utmost precaution they will sometimes escape detection. Only those who have seen such cases can imagine the difficulty experienced in finding some wounds, especially when the upper part of the transverse colon and the surrounding omentum are involved. If the intestines are much distended, it may be necessary to puncture them. It is important to remember that extravasation has followed such a puncture, and they should always be closed with a Lembert suture. If the vermiform appendix or an epiploic appendage is injured, it should be excised. In wounds of the intestine, it makes a difference whether the injury is

the result of a gunshot or of a stab. Gunshot wounds are more apt to slough than knife wounds, and where many wounds of the former are located close together, it has been found advisable to excise a portion of the gut including the numerous wounds. Probably a foot of the bowel may be excised without much disadvantage. Six or eight feet have been excised, but in this case the operation was followed by emaciation and death. In such a case it would probably be better to make several excisions. Perforations when found should be turned into the bowel by the suture of Lembert. Wounds of the large intestine and stomach are to be treated in the same way.

Where the ball has perforated the mesentery, the wound edges should be excised. This is the opinion of those who have done most operations. The opening is then brought together with stitches on both sides, or passing all the way through. If the omentum be badly injured, no harm will come from its excision. It may be ligated in various places and the whole cut off without injury. In a hernia case, I cut off what I supposed to be almost the whole omentum, and the man got perfectly well. Where the spleen is wounded, the only method seems to be to excise the organ. This has only been done, so far as I know, twice. Very little is known about the treatment of injuries of the spleen. Wounds of the liver have been met with a number of times and all the cases have died. Whether or not it would be practicable in these cases to stitch the liver to the abdominal wall, etc., I cannot say. Tait has done it in chronic disorders a number of times and has had favorable results. We should be encouraged to experiment in this direction. About wounds of the pancreas little is known—I doubt if they could well be reached. If the kidney is extensively wounded, its excision or complete drainage is indicated. If the ureter is divided, the only remedy is excision of the corresponding kidney. If the projectile has gone through the diaphragm, the same operation as in the case of the mesentery would be indicated, namely excision of the edges and sutures. Of course, all bleeding vessels are to be tied. If this is impossible, the main trunk, even if this be the aorta, must be tied. Wounds of the uterus and appendages have not been dealt with, but would probably require excision.

Then there is another class of wounds entering the abdomen—that is, wounds through the vagina and rectum; for instance, a stab wound through the vagina. If we knew that it penetrated, abdominal section would be indicated. In all these cases contusions or brush burns of the omentum and intestine frequently are found. In time, nearly all of these will slough and give rise to pus. In several cases death has been attributed to this cause. All severe contusions involving the mesentery or omentum should be excised. When they involve the intestine, the peritoneum should be united over them with Lembert sutures. The suture materials which I have seen used have been silk and catgut. I think the latter is preferable if fine and chromicized.

I have one table which gives the average time after injury when the operation was performed. This is one of the most important things that we can consider. The sooner the operation is performed, the better are the chances of the patient. The cases in which the time is reported number forty-five. The average time after the injury for which operation was done, was eighteen and a half hours. Deducting four cases where more than two days had elapsed, the average falls to twelve and a half hours, while a deduction of all the cases where the time was over twenty four hours, brings the figures to nine and a half hours. The average time after the injury when the operation was begun in the successful cases was seven and three-quarters hours; the average in the fatal cases was twenty-three and one-quarter hours. These are significant facts. In the five cases operated on at the Pennsylvania Hospital, the average time was six hours. Deducting one case in which from unavoidable circumstances twenty hours elapsed, the average comes down to three hours.

In all cases the question of drainage will arise. It is difficult to decide, in any given case, whether drainage should be employed or not. If there have been extravasation and numerous wounds, drainage seems to be indicated. Glass and rubber tubes have been used with apparently equal success and failure. I think that tubes of glass or other hard material are to be preferred. Where there has been extravasation of the contents of the stomach or intestine, this is usually followed by great oozing of serum.

The final steps of the operation are irrigation and cleansing. In irrigation I believe most thoroughly. It should be very large in quantity and can hardly be too much so. If the patient is shocked, there is no better treatment than pouring hot water through the abdominal cavity. It probably acts directly upon the solar plexus. I have seen this frequently used with marked benefit. The patient will be in far better condition after the use of a gallon or more of water at a temperature of 100° to 110°, than before its application. It has occurred to me that in profound shock from other causes, it might be well to puncture the abdomen with some form of double canula and thus irrigate the abdominal cavity with large quantities of hot water. What shall be put in the solution used for irrigation? Several agents have been so used: Water, distilled water, boracic acid solution, mild solution of bichloride of mercury, and solution of carbolic acid. Carbolic acid should be expunged from the list. Bichloride of mercury, when employed, should be in very dilute solution—1 to 5000 or 10,000. Boracic acid was used in two successful cases in 3 per cent. solution in unlimited quantities. In four cases at the Pennsylvania Hospital the bichloride solution in the strength of 1 to 5000 and 1 to 10,000 was used and apparently without any bad effect. It was used in both of the successful cases there. Distilled water is very good and especially in cases where extravasation has not occurred. Where there has been extravasation, purulent peritonitis set up, or it is not certain that all foreign matters have been removed, I think that an antiseptic is indicated. Where we have a solution like that of boracic acid, possessing fair strength with little danger of poisoning, it should be used.

The parietal wound is closed and dressed in the usual manner.

One question in the after-treatment would arise in cases where a drainage-tube had not been left, and would be with reference to reopening the wound and drainage where a large amount of serum was present. Each individual case must be decided for itself. The onset of violent peritonitis would be an indication for reopening the belly, irrigating and draining it.

I wish now to take up a few of the classes of these cases in succession. Those which have been discussed before will not be reconsidered. Rupture of the bladder will be discussed separately. First, with reference to gunshot wounds. The total number of cases recorded is 22. Of these, 5 recovered and 17 died, a mortality of 77 per cent. Of these 22, 18 were done in the United States; 4 recovered and 14 died, a mortality of 77 per cent. The foreign cases were 4 in number, with 1 recovery and 3 deaths, a mortality of 75 per cent. The first recorded case of gunshot wound treated by abdominal section is that of Dr. Kinloch, of North Carolina, in 1881. The first recovery was the case of Kocher, of Switzerland, in 1883. The first recovery was a case operated on by Dr. Wm. T. Bull, of New York, in 1884. These 22 cases were done by 15 operators—11 American and 4 foreign. In Philadelphia there have been two cases of abdominal section for gunshot wound. One was done at the Pennsylvania Hospital two days since by Dr. Thomas G. Morton. In one case of gunshot wound a wound of the intestine was overlooked, with a fatal result. McKellar, of London, reports a case of two wounds of the lower portion of the sigmoid flexure in which it was impossible to introduce stitches. All that he could do was to throw a ligature around the wounds. The patient died, and fæcal extravasation was found at the autopsy. It struck me that in this case rectal distention by a colpeurynter might have been of some assistance, lifting the bowel up so that stitches could be inserted, for I understand that the openings were on the anterior wall. Such cases are, however, exceedingly difficult to remedy.

I will read the notes of a case of gunshot wound of the abdomen:

Case 1.—B. B., a negro, aged 36, of splendid frame and constitution, was admitted here late in the afternoon of January 23. Three-quarters of an hour before admission, he had been shot by a ball fired not more than a couple of feet from him; its calibre was 32. When admitted, he was not shocked; but slight nausea and severe general abdominal pain, were present. Pulse and respiration slightly accelerated; temperature 98°. A bullet wound was found an inch an a half above and half an inch to right of the umbilicus. No tympany, emphysema, decrease of liver dulness, or other marked symptoms, were present until just before anæsthesia was begun. He then vomited more or less altered blood copiously. Abdominal section had been decided upon by Dr. T. G. Morton over the telephone, and full preparations having been made meanwhile, the operation was commenced almost immediately upon his arrival—an hour and a half after the accident.

The man's condition at that time was very good. The belly wall having been made surgically clean, and penetration proved, an incision was made by Dr. Morton from two inches below the ensiform cartilage to the pubes. Instantly upon opening the peritoneum a large quantity of fluid and clotted blood, together with much flatus and partially digested food and fæces, gushed forth. The peritoneum, where not injured, looked in good condition. The cavity was first cleaned as well a possible by rapid sponging, and then searched for wounds. Three perforating wounds of the stomach first came into view. They were situated in a straight line, transverse, just above the omental attachment, and rather to the left of the centre of the organ. Two were anterior; the third posterior, and came out through the omental sttachment. One other perforation of the stomach was found. This was in the lower edge of the right hand portion, about three inches from the pylorus. All of these holes were bleeding pretty freely, and vomiting gastric contents. The posterior perforation was found only after several careful searches. Next, a linear rent of the transverse colon, just before it curves downward, was found. The tear was an inch and a half or two inches long, and through the omental attachment. All of these wounds were trimmed and sutured with Lembert sutures, of fine chromicized catgut, about an eighth of an inch apart.

The omemtum was terribly torn in a number of places, and filled with very large extravasations of blood, which had become clotted. The clots were removed as thoroughly as possible, and one long rent corresponding to the colon wound was stitched by a continuous suture. A number of ecchymoses of the small intestine and mesentery were found; one of these ecchymoses of the intestine looked as if it would be likely to slough. This was turned in by uniting the serous surfaces of the bowel above it with the Lembert suture. The entire cavity was thoroughly searched, including the liver, gall-bladder, and spleen. The bullet could not be traced after leaving the stomach. The spinal and dorsal regions had been carefully examined for evidence of it there before the operation was begun.

Every portion of the abdominal cavity was then sponged and thoroughly irrigated with $HgCl_2$ solution, 1 to 10,000, and the parietal wound closed without leaving in a drain, and dressed in the usual manner of the hospital. Time from patient's being taken from bed until put back again, two hours. Time from beginning incision to putting on dressing, an hour and a half.

After the operation the patient was somewhat shocked, but in an hour had reacted well, and was perfectly rational. He remained in this condition for four hours, complaining only of slight pain in abdomen. Five hours after operation he presented all the signs of hæmorrhage, and rapidly sank, breathing much interfered with, and no radial pulse. He died in another hour—six hours from the completion of the operation.

Post mortem.—Abdominal cavity contained about a pint of faintly blood-tinged serum; intestines con-

gested; no additional or overlooked wounds found; the repaired ones in good condition and water-tight. Ball, after leaving stomach, penetrated diaphragm, and, without injuring the lung, struck the lower border of the seventh rib three inches anterior to its angle, chipping it and cutting the intercostal artery, which had bled a pint and a half into the pleural sac. The ball was found an inch and a half further along anteriorly in the same interspace.

The only point that I would add is in reference to finding the ball. As a rule, it is not found. In this case we traced it as far back as the diaphragm, and thought that it might have gone through the edge of the spleen, but examination showed no wound of the spleen. The difficulty experienced in finding wounds of the upper portion of the stomach, where the omentum is cut and ecchymosed, is almost beyond description. It is a wonder that some of the wounds were not overlooked.

I will now refer to stab wounds. In all the recorded cases, with the exception of one, the wound was produced by a knife. In that one instance, it was caused by a sharp splinter of wood. As we should expect, these cases present the most favorable showing. The total number of cases reported is 19. Of these, 12 recovered and 7 died; a mortality of 36 per cent. These operations were done by 14 operators, 10 American and 4 foreign. The 10 American operators did 15 operations, with 8 recoveries and 7 deaths. The foreign operators did 4 operations, and all recovered. The first case on record is that of Kwiectuski, of Russia, April 15, 1883. The first American one is that of Dr. W. O. Roberts, operated on August 28, 1885. The first recovery was the case of Kwiectuski. The first American recovery was the case of Dr. Roberts. The credit of the first recovery properly belongs to Dr. Roberts, of the United States, for the Russian operator had a large wound already made, which he enlarged to a certain extent, and sought for the intestinal wounds. Dr. Roberts had but a small opening made by a penknife.

I shall now read the histories of two cases:

Case 2.—G. W. J., æt. 40, a powerfully built man, was admitted to the Pennsylvania Hospital September 9, 1886, at 10:30 P.M. He had been stabbed by a long and narrow butcher's knife a few minutes previously, and had lost considerable blood. Had frightful pain in right side of abdomen; scarcely any shock. Upon examination a wound three-quarters of an inch long was found about two inches above the centre of Poupart's ligament on the right side; through it were prolapsed several inches of small intestine. Dr. John B. Roberts saw him in about three-quarters of an hour, and determined upon abdominal section. The operation was begun at once by making a five-inch median incision, strict antiseptic precautions being adhered to. The peritoneal cavity contained a large amount of dark fluid and clotted blood, while the intestines were almost wholly collapsed and empty. The prolapsed bowel was first reduced and then brought out through the operation wound and carefully examined, cleansed, and returned. The entire intestinal canal was thus examined, as were also the other viscera and mesentery.

This research revealed six wounds of the intestine and mesentery, namely: four wounds opening small intestine, one cut opening the colon just above the cæcum and running into the mesocolon, one transfixion of the mesentery. The wounds of the colon and mesentery were bleeding actively—the former permitted escape of bowel contents. The lesions of the small intestine were occluded by prolapsed mucous membrane. All open wounds were about one-half inch in extent, and were closed with Lembert's sutures of silk. After repairing these injuries the abdominal cavity was most thoroughly irrigated with hot 1:10,000 $HgCl_2$ solution, and then sponged dry. A glass drain-tube was put in as far as the rectovesical pouch, and the parietal wound closed with chromicized catgut. He reacted well, and was perfectly comfortable next day after the drain had been removed, for it caused great pain in the lower pelvic region. Previous to its removal, about six ounces of faintly blood-tinged serum came through it. No pain afterward. Its exit was stitched.

No food was given for three days, but bromide of potash, chloral, and brandy were administered in large doses, as delirium tremens was anticipated. Nutriment was begun on the fourth day, and gradually increased. Delirium then present, and on the increase. On the fifth day he seemed in a fair way to die from the great exhaustion incident to the mania. With Dr. Roberts' consent I determined to give strychnia to physiological effect—regarding that drug as indicated in the profound nerve exhaustion of delirium tremens. One-thirtieth of a grain twice daily by hypodermic was started, and the quantity rapidly ran up until twitching, etc., became manifest. This did not occur until he had been taking one-tenth of a grain every hour, and a half for half a day. The same dosage was kept up for thirty-six hours and then reduced to one-tenth of a grain every fourth hour for another day, as that amount kept up the full effect, since he was becoming more and more sensitive to its influence.

He was thus kept, by smaller and smaller doses, in the full physiological effect of the drug for nine days; at the end of which time ten minims of tr. nux vom. could not be comfortably borne, and the drug was suspended entirely.

The effect upon him of this medicament was very marked indeed, and both Dr. Roberts and myself firmly believed that it saved his life. I have since tried this treatment upon similar cases with exceedingly good result.

Beyond the above his convalescence was uneventful. The belly healed by primary union. He was walking about his room on the fifteenth day, and in the yard on the seventeenth.

Discharged on the nineteenth day.

Case 3.—J. D., an Italian fruit-vender, aged 30, was brought to the hospital at 1 A.M., December 25, 1886. He had received a stab during a broil some squares distant from the institution, and had walked all the way. Almost immediately upon receipt of the injury he had vomited the contents of his stomach; not much pain was present, and that little was just around the wound, which was situated two inches

to right, and three quarters of an inch above umbilicus. *Decided emphysema was present* for a space of three inches all around the wound. Temperature, pulse, and respiration normal. He was given a dose of morphia by hypodermic, and slept quietly until morning. There was no odor about the wound, no signs of fluid in peritoneal cavity, no diminution of liver dulness. At that time, 1 A.M., the wound, one-half an inch long, was cleansed, stitched, and sealed with benzine and collodion.

At 7 A.M. pulse, temperature and respiration still normal, but much pain was complained of, which seemed centred about the region of the wound, and was stated to be increasing and spreading every moment. Vomited green material then.

It was decided to do an abdominal section, and at 10 A.M. the operation was commenced by Dr. T. G. Morton.

The original wound was first proved to penetrate —the intra-abdominal opening was not more than one-quarter of an inch long. Median incision was done from two inches above umbilicus to within one inch of pubes, and the abdominal contents searched. A small amount of fluid and clotted blood (℥ss) was found immediately below the stab wound. This blood was mainly entangled in the omental tissues. A rent of one layer of the omentum, about two inches long, was found in this region, also a divided and bleeding omental vessel just outside the tear. The artery was ligated, and the tear sewn with catgut. The peritoneal opening of the stab wound was then closed by a single stitch of the same material. No other lesions could be found, as the cavity was carefully cleansed with sponges, and plentiful irrigation with warm 1 : 10,000 $GgCl_2$ solution, and the external wounds closed with closely placed interrupted fourteen-day catgut sutures. An antiseptic dressing and flannel bandages were applied, and morphia to mild narcotization administered. No drain was used. Strict antisepsis prevailed throughout. Time of operation, one and a half hours.

December 29. The only annoying symptom from which he has suffered has been bilious vomiting from time to time, and which still keeps up in spite of various medicaments and champagnes, of which latter has been taking f℥j every second hour; also has been taking f℥j of peptonized milk every two or three hours since 12:27 A.M. Dressed, because of disordered dressing yesterday, and wounds found united throughout.

Bowels opened last night, and again this morning, by enema. Urine had to be drawn twice following operation. He had no special pain.

January 11, 1887. Up to-day and walking about. All sutures are away. No dressing on wound since January 8.

January 21. Discharged cured; walked home; twenty-eight days in hospital.

I will now consider ruptured bladder. The total number of cases reported is 10, with 4 recoveries and 6 deaths, a mortality of 60 per cent. There were 9 operators—3 American and 6 foreign. The American operators performed 3 operations, with 1 recovery and 2 deaths. The foreign operators performed 7 operations, with 3 recoveries and 4 deaths. The first recorded case of abdominal section for ruptured bladder is that of Walters, of Pittsburg, in 1862. This case was also the first recovery. In Walters' case he diagnosed rupture of the bladder, with infiltration of the peritoneum with blood and urine. He opened the abdomen, cleansed it out, and put in a drainage-tube, but did not sew the bladder wound. The second case was that of Alfred Willits, of London, operated on June 12, 1876. This case died. The second American case was that of Dr. Bull, operated on October 27, 1884. This case also died. Two recoveries have recently been reported by MacCormac. Philadelphia has had one case which was operated on by Dr. Joseph M. Fox, August 16, 1886, with fatal issue. I will read the report of this case.

Case 4.—E. M., a man aged 38, at 1 A.M. on August 16, 1886, walked out of a second-story window. Two and a half hours afterward he was admitted to the Pennsylvania Hospital. He had been drinking much the previous evening, and the bladder was distended at time of accident. Upon examination, the resident surgeon, Dr. Alexander McAllister, found that the neck of one femur was fractured, and that he had marked symptoms of ruptured bladder, namely, great pain over bladder and lower abdominal region; intense desire, but no power, to micturate; bloody urine by catheter. He was much shocked, but had recovered by 9 A.M., when he was in good condition. Dr. Fox at that time saw him, confirmed the diagnosis, and determined to operate, but through the intervention of circumstances beyond his control was prevented from so doing until evening, when the operation was performed.

Strict antisepsis prevailed. A four-inch median incision was made over the bladder. Ten ounces of blood and urine were found in the peritoneal cavity. Intestines congested, and in places looked almost gangrenous. A 2½-inch triangular opening was found in the anterior portion of the fundus. The viscus was held up by two long sutures passed through the sides of the rent, and the wound was then sewed with closely placed Lembert sutures of catgut; fifteen were introduced. It did not leak when distended with 1 : 1000 $HgCl_2$ solution. The abdominal cavity was then thoroughly washed with 1 : 5000 solution, the parietal wound closed, leaving in a bone drain-tube down to the bladder; but, of course, not entering that organ. A rubber catheter was left in the urethra. He died in forty-two hours.

Post-mortem examination showed localized peritonitis about wounds. Wound of bladder water-tight. Blood clots in pelvic basin.

Now a few details with reference to ruptured bladder: The symptoms of ruptured bladder are more definite than those of most other cases. The condition of the bladder at the time when the injury is received is of some importance, but cannot always be ascertained. Shock is usually present, as in other cases. Pain in the hypogastrium, fruitless efforts at micturition, vomiting, hiccough, distension of the abdomen with fluid, the withdrawal of blood or bloody urine by the catheter, are all good indications. If

there is no urine in the bladder, or none comes in, it is a fair sign. The catheter can sometimes be introduced to a great length, and occasionally the rent in the bladder wall may by this means be detected. The withdrawal of an enormous quantity of fluid is another indication. If warm water is injected, it may be felt by the patient in the loins and other locations. With the catheter in the bladder, the liquid sometimes ebbs up and down with the movements of respiration. Recently Dr. Weir, of New York, has suggested a test for ruptured bladder, which consists in injecting a certain amount of fluid and percussing over the region of the bladder. If a definite outline of percussion dulness is noted, it is a fair inference that the bladder is not ruptured.

It is important to determine whether the rupture is extra- or intraperitoneal. Stephen Smith has shown, in a collection of 65 cases, that the peritoneum is injured in 80 per cent. of the cases. Max Bartles found, in an examination of 166 cases, that the rent was intraperitoneal in 98, and extraperitoneal in 54. In 84 cases of intraperitoneal rupture the rent was situated in the fundus in 40 cases; in front, near the fundus, in 9; posteriorly in 33; and at the side in 2 cases. In 50 cases of extraperitoneal rupture, the rent was at the neck in 19, anterior in 23, posterior in 2, and at the side in 6. In 15 of these cases there was fracture of the pelvis. In these cases, as a rule, the urine found in the peritoneum is healthy, and not decomposing. An interesting paper has been published by a Russian, giving the toxic effects of urine which has escaped into the peritoneal cavity.

The method of operating is an interesting one. Having determined upon interference by section whether the diagnosis has been made positive or not, a median incision should be made and enlarged to suit the convenience of the operator. The incision may at first be made down to the bladder, as for a suprapubic lithotomy. If there is a wound in front, you may feel if it enters the peritoneal cavity; but even this is fallacious. Having found the wound in the bladder, the first thing is to clean the peritoneal cavity. Next, it is necessary to get the bladder into a position to suture it. This has been, until recently, found one of the most difficult steps of the operation. To obviate this, distension of the rectum with a colpeurynter has been practised. More recently, as in the case of Fox, sutures have been introduced on either side, and may be combined with the use of the colpeurynter. MacCormac, who found considerable difficulty in bringing up the bladder, made a lateral incision on each side through the peritoneum. This liberated the bladder immensely. These peritoneal wounds he stitched together in the usual way, but it appears to me that this might be improved upon by introducing the stitches as Dr. Emmet does when sewing up his relaxation incisions of the vagina or elsewhere—that is, by uniting the wound by stitches passed in its longitudinal diameter. It has been found that the cases in which the sutures penetrate all the coats of the bladder invariably terminate fatally. This must be borne in mind, and the sutures passed only through the serous and muscular coats. The bladder wound is to be brought together with Lembert sutures of silk or catgut.

The after-treatment brings up the question of drainage, which has been discussed. A catheter should be left in the bladder. Another important thing is to prove that the stitches effectually control the opening in the bladder. This is done by injecting some solution—better, a weak antiseptic solution—into the bladder. If there is any leakage, additional sutures should be introduced; or the first row of stitches, by a second set, turned in.

The last division of the paper relates to rupture of the intestine. The total number of cases reported is five, of which number none recovered. One operation was performed in America and four abroad—two in Australia, one in France, and one in England. The first recorded case is that of F. H. Girdlestone, of Australia, February 14, 1883. The only American case recorded is that of Dr. E. A. Wagner, on August 2, 1886. One case fell, and pressed a truss down upon a descended hernia; one was thrown from a horse; two were kicked in the abdomen; and one was crushed by a horse. In five cases the small intestine was ruptured, and in one the colon was the part involved. I have the notes of one case of ruptured intestine which occurred in my father's wards in the Pennsylvania Hospital. I wish, in conclusion, to relate it, though it was not an operative case.

Case 5.—B. R., aged 57, was brought to the Pennsylvania Hospital, a distance of ten miles, on a bitter cold night, sitting in an upright position. Upon his arrival he was in a state of collapse from exposure, cold, pain and weakness. He stated that he had long been subject to a hernia (indirect inguinal) of the right side; that he habitually wore a truss that did not keep it reduced properly; and that while it was down, about thirty hours before admission, he had been violently kicked in that groin. He experienced some pain and nausea at the time, and both steadily increased up to the time of his admission. His bowels had not moved.

Upon admission his condition was as above; no vomiting or belly pain. A large swelling was present along the proper position of an indirect inguinal hernia. In this lump he had severe pain. All endeavors were directed to bringing him out of his shocked condition.

December 3, 1886. Late last night he had reacted sufficiently to receive an anæsthetic, which was administered, and a thorough examination of the affected region made. No hernia was present; simply a mass of inflammatory exudation. Considerable emesis and some recurrence of shock followed. This morning his condition seemed fair. He stated that he had none or very little pain; took liquid nourishment; and had his bowels freely moved by enema; *no abdominal symptoms whatever.*

In the afternoon he vomited, several times, material with a suspicion of fæcal odor about it, and during the night it became very markedly so. It now became evident that he was suffering from one of three conditions, namely, either a ruptured gut, a reduced though still strangulated hernia, or an intussusception.

4th. The first thing this morning preparations were made for opening the scrotum, and, if necessary,

the abdomen; but the anæsthetic so depressed him, and his condition within the last few hours had become so bad, that the operation had to be abandoned. He died in the course of a couple of hours.

Post-mortem.—Upon incising the scrotum a quantity of fæcal material was found; no hernia was present, but the internal ring was patulous. The peritoneum was found in a state of general peritoneal inflammation, and a great quantity of fæcal fluid material was present in the pelvic basin. A loop of small intestine, having an inflammatory ring about its neck, was found in a state of almost gangrene, from congestion and inflammation; while the loop was torn for an inch in extent in two places; the communication of the loop at both ends with the normal bowel was present, though the opening was small. Post-mortem examination otherwise negative.

HYDROPHOBIA (RABIES CANINA); FATAL TERMINATION.

BY HORACE P. STEBBINGS, M.D.,

OF ENGLEWOOD, ILL.

On Wednesday, October 20, 1886, at 4:30 P.M., I was called to see Daisy I., who had been bitten by a dog. Some one who saw her afterwards said there were thirty-five punctures: one wound on the back of the neck, one in front of left ear, one above left clavicle, one on the left leg, and the others on forearms and hands. All the wounds were cauterized with a 25 per cent. solution of nitric acid except one on the left leg, where lunar caustic (fused nitrate of silver) was used, as the wound was superficial, merely a scratch, and one above left clavicle to which a 95 per cent. solution of carbolic acid was applied. Extreme pain caused by the nitric acid was the cause of the deviation from the rule in the case of the two wounds.

The wounds were seen by me ten minutes after they were made, I am told, and work commenced on them immediately. An ordinary drop-tube was passed to the bottom of the punctured wounds and the liquid forced out of the tube until it ran over the skin about it. The wound in the skin above the clavicle was not discovered until two hours later, as the dress was untorn, it probably having been made by a claw. When seen it was treated with the 95 per cent. sol. carbolic acid as stated above.

The shock was profound, and ¼ grain morphine (sulph.) was administered by the mouth, and the girl put on a couch to rest, the wounds being only loosely covered and not dressed.

Wednesday evening.—Wounds were dressed with carbolized vaseline, then manilla paper, and roller bandage. She was much quieter, had been asleep, and was resting pretty well. Slight febrile movement.

October 21, Thursday morning.—Had passed a pleasant night; muscles very lame and wounds sharply inflamed, indurated and red, but the inflammation closely circumscribed. Wounds dressed as on night before.

Thursday night found Daisy restless and worried, for a man, a doctor, she guessed, had removed all the bandages and counted the wounds. Whoever it was failed to replace the dressings, and the lady had put them back very nicely, but the dressings had become harsh when removed and had acted as irritants until reapplied. She is having too much company. Was glad to have her wounds redressed. Added iodoform to two wounds that showed signs of suppurating. Prescribed

Tinct. ferri chlor.	
Acid phosphor. dil. ää	℥j.
Quiniæ sulph.	℥ij.
Aquæ q. s. ad	℥iv.

directed one teaspoonful in water after each meal, also one compound cathartic pill (U. S. P.) for torpid condition of bowels.

October 22, Friday morning.—Bandages again in part removed; several wounds suppurating and looking well. Neck very lame from wound on back of the neck and the one in front of the ear. Lymphatics below this latter wound indurated and swollen. No motion of bowels yet obtained, so directed another compound cathartic pill to be taken unless a movement should occur spontaneously by noon; for inaction of kidneys, directed a mixture of spts. alth. nitros., liq. ammonii acetatis and potas. nitratis. Iodoform used on all wounds at first sign of suppuration.

Friday evening.—Bowels had moved and kidneys doing excellent work without the need of medicines of any sort. Wounds in excellent condition, and redressed with carbolized vaseline and powdered iodoform.

October 23, Saturday morning.—Tried to see a turgid condition in some of the wounds and penciled a 25 per cent. sol. of carbolic acid around some of the wounds, and redressed as before. Eating soft foods, broths and soups, as wound in left masseteric made movements of the jaw very painful.

Saturday evening.—Applied two "madstones," one green one about two-thirds as large as a hen's egg and flattened on one side; one red, looked like pipestone and had a clayey odor; this one was about half the size of a hen's-egg, irregular in form with one flattened surface, and showing bright fractures. Both stones were finely porous and adhered to any moist surface as it did to the back of the hand moistened with saliva. The stones were covered about with absorbent cotton, so as to render the wounds to which they were applied free from contact with atmospheric air. The stones were tolerated by me because family and friends all worshiped this "fetich," and the feeling of "cure" was in every mind after their use. Consent was easily obtained that no reference be made to the circumstances of the injury, to the time, nor the name of the dread disease be mentioned.

October 24 Sunday morning.—The green stone glued to dried pus at the orifice of wounds, the red one loose. The stones draw, *i. e.*, by capillary attraction produce a sense of suction and leave the wounds stimulated by their harsh feel and movement. The same dressing renewed.

Sunday evening.—Stones removed and boiled; one reapplied, the other allowed to dry during the night. Wounds redressed as before, all of them looking well.

October 25, Monday. — Wounds redressed and stones applied to any indolent-looking sores, as their presence satisfied friends and patient. Daisy had "caught cold," was sneezing badly, hands and feet cold, bowels torpid. Gave

Tinct. opii camph	℥ss.
Tinct. aconit. Rad	♏xv.
Tinct. digital	℥ij.
Aquæ chlorif	
Aquæ āā q. s. ad	℥iij.

Take 1 teaspoonful for a dose four times daily; also one compound cathartic pill (U. S. P.)

Monday evening.—Cold did not trouble her; circulation restored, and functions all perfect so far as known. Wounds doing well and redressed as before.

October 26.—Tuesday forenoon stones boiled, dried and reapplied. Wounds redressed as before.

Tuesday evening.—Wounds redressed as before.

October 27.—Wednesday morning and evening nothing to record.

October 28, Thursday.—Because of a little restlessness the iodoform was discontinued and impalpable boracic acid used in its stead. Otherwise everything as before.

Thursday evening.—Slight fever, but cake and cheese account for it. At the request of the gentleman at whose house she was given a home, I spent the day in another room without her knowledge. To-day she drank five or six pints of water. Wounds looking finely.

October 29.—Spent the day at the house dressed the wounds in the forenoon as on the 28th. A diphtheritic membrane that appeared on a few wounds was destroyed with lunar caustic and in part removed. At noon she was left sitting up with the servant girl alone in the house. Seized the opportunity to eat cheese, cake, a large amount of butter and two or three ounces of syrup. Dressed her wounds on my return, and of course there was considerable restlessness and fever, but this was controlled by the mixture given on the 25th. Itching of wounds to day and yesterday, relieved with creosote water diluted to four times its volume. Uneasiness seemed to be due entirely to a healthy reparative process. In the evening her friends were worried, and desired me to call in Dr. C. H. Whitman to consider the question of removal. Wounds redressed dry with iodoform and absorbent cotton. We could see no reason for her removal, but desired the family to carry out their wishes. They concluded to remove her to St. Luke's Hospital, Chicago.

October 30.—Her wounds, which were almost all healed, were dressed dry with iodoform, as on the previous evening, and she was taken in a closed hack five miles to the hospital.

She remained at the hospital one week, during which time her symptoms were negative. The first day after her ride and getting her in bed.—"Pulse 82, temperature 99.2° F.; no pain, bowels moved. At night homesick. Appetite fair, quiet." Next day, October 31: "Temperature normal, slept fairly well." Next day, November 1: "Up all day; no pain. Bromidia ℥j nightly for sleeplessness."

Until Sunday, November 7, there is no further history, no symptoms to be recorded while under the most careful observation, and she was discharged and recorded cured; which means, I suppose, that her lacerated or punctured wounds were healed so far as to be out of danger of sepsis. On looking over her wounds she called my attention to a pimple on her left arm, exactly like several that had appeared on the back of her neck and elsewhere under the vaseline dressing, some of which I had incised. There was no infiltration or infection apparent. Until Thursday, November 11, there is no further history, and nothing of interest that can be recalled by the family.

Thursday evening, November 11, 1886, 8 P.M.—Dr. C. H. Whitman was called in to see Daisy I. Temp. 102° F., pulse 100, hard and strong, skin hot and dry, tongue slightly coated white, pupils slightly dilated. Pain in the lumbar region extending down sciatic nerves; or, as she expressed it: "My back aches and my bones ache down my limbs," making a motion down over lower part of back and down back of thighs. Prescribed of the following:

℞.	Tinct. aconit. rad	gtt. x.
	Fld. ext. asclepias tuber	℥ij.
	Glycerini	℥ij.
	Water q. s. ad	℥ij.

℥j every hour.

also quinia sulph., 5 grains every four hours.

November 12, Friday, 6:30 A.M.—She had slept very little during preceding night; had been very restless. Temp. 102.5° F., pulse 110, tongue not much changed, pupils less dilated, bowels moved naturally. Urine passed about normal in quantity, of a greenish-yellow color, and with an abundant flocculent sediment which appeared soon after it was voided. A fuller account of the analysis of the urine is appended. To-day the wounds were first complained of, the new cicatricial tissue reddened, and the sites of two healed wounds broken open and discharging pus (the wounds were the one on the back of the neck and one on the left forearm). Complained of extreme pain in one of the knee joints, and there was now developed a general hyperæsthesia. To meet these indications morphine in ¼-grain doses was given every five hours until three doses had been taken, and iodide of potash was also given.

1 P.M.—No alteration.

4 P.M.—Difficulty in swallowing, and slight spasm and inharmonious action of constrictors of pharynx first noticed.

7:30 P.M.—Slight fulness of face and pallor. Temp. 100° F., pulse 90, tongue bright red (tongue of inflammation). Wound in front of left ear became painful. Hydrochlorate of cocaine gave relief. At this time and until midnight morphine alone was used. After midnight there was a troubled sleep until morning.

Saturday, November 13.—Was called at 8:30 A.M. by Dr. C. H. Whitman to see patient. Drs. Lovewell and Wilder, of this place, were also called. Found her with face bloated and pallid. She recognized me, but feared to allow any one to approach her; said it "strangled her." Abscess on left arm, areola the size of a silver dollar and a drop of healthy-looking pus

at its summit. Bite in neck aches, also the one above the left clavicle. Spasm of respiratory muscles and those of deglutition on movements toward her or when a breath of wind was felt. Wants people to approach her from head of the bed, as movements from that direction (which she does not see) do not trouble her. During forenoon commenced the use of chloroform by inhalation, which could only be used very much diluted with air because it burned her throat, as she said, and her eyes. Pulse 100, pupils normal, but once or twice momentarily very much dilated. A handkerchief was allowed to rest on the eyes, to remove all excitement caused by sight, but the moment it touched her cheek it was jerked vio lently away. While the handkerchief was in place the chloroform was urged a little, and 1/6 grain of curare was injected hypodermatically, she not being aware of the operation. On awaking she is unable to swallow either water or ice.

2 P.M.—Patient unchanged, except a little less excitable than in the forenoon. Wants to take the cloth in her own hand and smell the chloroform, which she is allowed to do.

Towards night, between 4 and 5, she was able to drink some water through a flexible tube, the glass being held three or four inches from her face, and she even wanted to hold the glass herself. Drank about + ℥iij, to her infinite delight, after which she felt much relief. There was some choking, but she persisted in the effort until the water was swallowed. She then submitted to another subcutaneous injection of curare (1/6 of a grain). Has taken no food; pulse 100.

November 13, midnight.—Daisy rests in comparative comfort, otherwise as excitable as ever, and allowed to remain alone, as the presence of any one makes her want to talk, and then she becomes excited and nervous. Has her cloth wet with chloroform and placed on a chair at her bedside, then she says: "now go out and I'll get it myself," and repeatedly cautions "don't fan so." At 1:30 A.M. was helped upon a chamber vessel and passed urine with a great vesical spasm; when helped back into bed she seemed very much exhausted by the effort of moving, although a lady and myself lifted nearly all of her weight. At 2:10 A.M. she made two violent attempts to clear her throat of thick sticky mucus. At 2:45 A.M. restless again and given more chloroform on her cloth, and is quieter again.

Here my notes of the progress of the disease were interrupted by her constant demands for assistance and care.

At midnight Saturday night I put on my heavy dogskin gloves and wore them constantly, for frothing had commenced, and she said to the lady who gave her a home: "Be careful, Mrs. D., for I might bite you. I wouldn't want to, but maybe I couldn't help it." Between 2:45 and 3 A.M. efforts at vomiting commenced, but only frothy mucus was thrown up. Afterwards came brownish and brownish-green matter, apparently from the duodenum. This was expectorated into a wash-bowl without violence, not more than two drachms at a time, and contained a finely curded or granular matter, undoubtedly bile.

Typhoid fever was prominent in her mind as the cause of her illness, and she asked many questions about it and if she had it. I assured her that she had, and also that I could break it up in a few days, as she was worried for the expenses of her illness to her friends.

Every movement, however deliberately it was commenced, would be finished with a jerk. There was perfect sanity whenever her mind was recalled by impression of any of the senses, but when left alone there would be a little low, busy delirium, talking to herself and low exclamations. Hearing was very acute, as were sight and feeling. The sight of the movement of a garment would cause her to exclaim "Don't fan so," before a wave of air had time to reach her, and her own breath on her hands, as they lay across her chest, caused her to complain of draughts.

From about 3 o'clock Sunday morning until death there was constant accumulation of carbonic acid gas in the blood, for there would be spasm of the epiglottis after a shallow inspiration, and the continued retching demanded more oxygen. The skin was of a dusky hue and wrinkled. In this condition, and about an hour and a half before she died, she was able to chew and swallow a little plain, soft wheat bread, and she took a little diluted fluid beef well salted; but although she liked its taste, the stomach promptly returned it. When she died there was slight spasm of the throat and chest, probably wholly of the epiglottis. There was no general spasm, and her mouth was left full of froth.

Of remedies after the development of "rabies" morphine accomplished next to nothing. Chloroform (Squibbs) gave great relief and was called for constantly. Very little was inhaled, but not much was needed. About 1½ lbs. was used in twenty hours, her attendants getting as much as she did. Curare (Merck's), while producing physiological effects, at one time numbness in one leg, and afterwards in both forearms and hands, but no further, doubtless avoided many violent spasms.

She was humored in every desire that could be fulfilled, and where it was not best for her she was satisfied with that assurance. No restraint was offered. Once a physician holding her hand and wrist lightly in his hand, did not instantly drop it when she jerked, and she glared at him, truly insane, mad, wild for the moment: "You are trying to hold me." I assured her that we would do no such thing, and she lay back in a moment soothed and quiet. She was of strong frame, well developed for her age, 15 years old, born and reared in a country town; had never menstruated; of very unusual will power and control of nerves. Mentally she was not balanced perfectly, *i. e.*, older in some regards than others, and otherwise there was a little bias.

No blebs were noticed about tongue or lips.

No post-mortem examination was held.

Examination of Urine, by Dr. Chas. H. Whitman.—Color, a greenish yellow. On cooling a white precipitate let fall, which cleared up upon boiling, also with nitric acid; this precipitate occupied one-fourth the volume of the urine. Reaction acid. Specific

gravity 1.028. *Albumen*, none. *Sugar*, none. Microscopic examination found one granular tube cast from straight uriniferous tubules, also a few epithelia from pelvis of kidney, some epithelium from bladder and some from vagina. Further than this there was found only the normal inorganic substances, *i. e.*, amorphous urates, urate of ammonia, urate of soda.

5730 Wentworth Ave., Dec. 10, 1886.

THE HEADACHE OF YOUTH AND ITS RELATION TO OCULAR DEFECTS.

BY CHARLES F. SINCLAIR, M.D.,

OF CHICAGO.

The subject of my paper is rather the relation of certain common forms of defective vision to headache in youth. The subject in general would take us over the whole field of ophthalmology, and is too vast to treat even superficially in the space allotted to my paper.

The headaches arising from defective vision are so numerous, and show such definite characteristics in connection, not only with the different forms of ametropia, but with its different degrees, that the ophthalmologist might easily furnish a terminology of his own. Instead of the usual classification into sympathetic, neuralgic, anæmic, hyperæmic, etc., another division, based solely upon the condition of the eye, might be made. This might be done, too, without regard to any faulty condition of the general system through which these errors of refraction, in many cases, first manifest themselves. And this is true especially in youth. There are headaches with certain definite characteristics which are caused not only by hypermetropia, but also by its different degrees, as there are of myopia and its different degrees. These fixed peculiarities are still more marked in the different forms of astigmatism. The severity of the pain seems in some measure to depend upon the nature of the ametropia, ranging from the dull, heavy ache in and around the eye found in the lighter degrees of hypermetropia and myopia, through the severer forms found in the higher degrees of these refractive errors, and in simple and compound astigmatism, to the intense neuralgic pain of that rare form of defective called mixed astigmatism. This latter pain may be of such severity and of so frequent occurrence as to destroy the usefulness of the life of the individual.

Such a case as this came under my care in February last, and, although somewhat of a digression, I shall take the liberty of presenting it. This patient was a young woman of 30 years of age, apparently healthy and strong. Her only complaint was about her "terrible head trouble." She had been troubled with her eyes since 10 years of age. When at school, if the sun shone brightly, she could not read her lessons, and would have to press and squeeze her eyes in order to see at all. About seven years ago her eyes were in such a condition that she could not look at any bright object, or use them for any ordinary work for months at a time. Since she was 15 years of age she has had terrible headaches in the forehead and temples, and in and around the eyes. As she stated, the pain is so intense it almost drives her mad. She can not even ride in a street car for fear the "neuralgia," as she termed it, would start up again.

These severe headaches were accompanied at times with nausea and vomiting, and these she called her "bilious attacks." At other times her "eye headache" came, when the pain seemed to be in and at the back of the eye, and which pressure relieved. At still other times the pain was located at the base of the nose, and these she called her "catarrhal headaches." In all, however, the pain in the eyes was severe. For fifteen years she has had these severe attacks regularly twice a week. They last sometimes a day and a night, and sometimes two days and two nights. She has taken medicine for biliousness and dyspepsia, and every patent medicine she could hear of for her catarrh. She has a large safe at home full of medicine bottles. Her house looks like a drug store. She has exhausted the whole pharmacopæia for lung and liver and stomach and throat troubles, and now, as a last resort, she comes to see if her eyes can be in any measure the cause of her suffering. On examination I found vision very defective, being but $\frac{2}{10}$ in the left eye and $\frac{4}{10}$ in the right. Plus and minus glasses were refused. The ophthalmoscope showed the usual distorted appearance of the disc seen in astigmatic cases, with a moderate degree of myopia in the vertical meridian, and of hypermetropia in the horizontal of both eyes. A lense of — 1.50 D spherical ⊖ + 1.50 cyl. axis vertical in the right eye, and of — 2. D sph. ⊖ + 1.75 D cyl. axis vertical in the left, improved the vision up to $\frac{7}{10}$, and apparently has cured the headache.

But it is especially in childhood and youth that these different forms of ametropia manifest themselves in all the various forms of headache. In a comparatively recent and voluminous work on the "Nature and Cause of Headache," by Wm. Henry Day, of London, a lengthy chapter is devoted to the consideration of the headaches of youth. He deplores the popular methods of education which push a child forward in the acquisition of knowledge without sufficient regard to physical training; "to the vigorous growth of the body and the stability of the frame, until some one link is broken in that mysterious chain of vital force which keeps the whole fabric in order, when the health in too many instances is undermined and life is absolutely shortened."

To one familiar with the intimate relation existing between the headaches of youth and ocular defects, and how, with the school boy and girl, all too frequently the eye is the link which first gives way, it seems strange that the author of such a work should in no instance mention ametropia as a possible cause, not alone of the severe headaches of childhood, but also, through reaction, of deterioration of the general health.

There is, however, one form of ametropia to which, on this occasion, I wish especially to refer, and which is exceedingly common among our school children. It is of slight degree and therefore easily overlooked. Indeed, it may simulate some of the less severe forms

of ametropia, and although these refractive errors may be but slight, yet they may be the cause of various forms of severe headache and of impairment of the general system. I refer to those cases of myopic and hypermetropic astigmatism of .50 D and .75 D. In these cases, for some reason as yet unexplained, the resulting disturbances are much more wide-reaching and serious than in the more common and simpler forms of ametropia.

The following cases will best illustrate the peculiar characteristics of these forms of abnormal refraction:

Case 1.—Maud W., a school girl, 14 years of age, has had severe frontal headache, and occasionally in the occipital region, almost daily for three years. It is usually, however, a severe throbbing pain through the temples and across the forehead. The severity of the pain is so great that she is frequently confined to her bed for days at a time. The headache is sometimes accompanied with nausea. These headaches became finally so frequent and severe that she was obliged to give up all her studies. Nothing during these years of suffering called particular attention to the eyes, but at last she noticed that the eyeballs were sometimes tender to the touch, and that the attacks usually began with slight lancinating pains in and around the eyes.

On examination excellent vision was found, being $\frac{9}{10}$, with some some few letters of $\frac{1}{10}$ for distance. With minus lenses of .50 and .75 of a dioptric vision improved to such an extent that $\frac{1}{10}$ was read with ease. After, however, the accommodation was paralyzed by the use of homatropin a half a dioptric of hypermetropia was found in the vertical meridian, for which a plus cylinder was prescribed, and no further complaints were made of the severe headache with which this patient had suffered for three years.

Case 2.—Emily R., 15 years of age, has had headache for a whole year, every day and every night. The pain at first was rather of the nature of a dull, heavy ache in the temples and forehead. This gradually increased in severity and extent until at times the whole head seemed numb. Two weeks before examination this dull ache turned into a sharp, throbbing, lancinating pain, shooting up through the temples and around the head toward the occiput. There was tenderness on pressure around the orbit, and especially over the supra orbital nerve. The eye-balls were also tender to the touch.

I mention this case for the reason that ordinary plus glasses were first prescribed, these permitting the patient to read $\frac{1}{10}$ with apparent ease. The patient, however, returned in a few days saying her headaches were as bad as ever. Here also, after the accommodation had been thoroughly paralyzed, a small degree of hypermetropic astigmatism was found which a × .50 D cylinder corrected, entirely curing the distressing head symptoms.

The important part these slight irregular forms of ametropia play in the headaches of youth is clearly seen in a case which came under my observation two weeks ago, in which but one eye was slightly astigmatic, the other possessing 1.50 D of long sight.

Case 3.—Lily L. has been troubled with her eyes for a year and a half. Patient looks delicate and anæmic, appetite is poor, has been very much troubled with headache—a dull, continuous ache over the frontal region, with sometimes throbbing and at other times sharp lancinating pains shooting out over the left side of the head from the left eye. During the time this patient attended school these peculiar headaches were of daily occurrence. In vacation they were absent. She is much troubled with constantly recurring attacks of vertigo and dizziness. While walking the streets these attacks are liable to come at any moment, when she is obliged to grasp some object to keep from falling.

The greater severity of the symptoms on the left side of the head seemed to find an explanation in the fact that the usual small amount of astigmatism was found in the left eye, the correction of which has apparently put a stop to both the headache and vertigo.

These are but types of, in my opinion, an exceedingly large number of cases where the most distressing symptoms, simulating, in many instances, even organic disease, may be quickly and thoroughly cured by so simple a remedy as a pair of properly adjusted cylindrical lenses. They are interesting to the ophthalmologist, as they may assume in certain cases not only the characteristics of myopia or hypermetropia, but even of normal vision; and they certainly suggest, to the general practitioner the advisability, in every case of severe or persistent headaches in youth, that not only the eye be carefully examined, but that it be examined only when thoroughly under the influence of some mydriatic.

MEDICAL PROGRESS.

HYPODERMATIC INJECTION OF FOWLER'S SOLUTION IN CHOREA MINOR.—To fairly test the value of hypodermatic injections of Fowler's solution of arsenic in the treatment of chorea minor, especially as compared with its internal administration, almost all cases of this disease admitted during the last year to St. Anne's Hospital for Children, in Vienna, service of Prof. Widerhofer, have been subjected to this treatment. For the sake of comparison a few cases were treated by Fowler's solution given internally. The results of the clinical experiment, which have been highly satisfactory, are detailed by DR. FRÜHWALD, assistant to Prof. Widerhofer, in the *Jahrbuch für Kinderheilkunde*. Equal parts of Fowler's solution and distilled water were used; care was taken to have the preparation fresh, and to have it freshly filtered before injecting it. One injection was given a day, alternately into the extremities, the needle being inserted deeply into the tissues and the surface having been well washed with thymol water. Treatment was begun by injecting up to the first division mark of a Pravaz syringe, the dose was increased day by day by one additional part until eight or ten such parts were reached. and then as gradually reduced until the original dose was again attained. In increasing the dose attention was given not only to the age of the patient and to the severity of the disease, but more

especially to the signs of improvement that became manifest.

In those cases in which the remedy was given internally the initial dose was 5 drops per diem; this was increased by one or two drops a day until 20 or 25 drops were reached, when it was as gradually reduced to the first dose. Of the twenty-five cases, almost all of which came under treatment at the height of the disease, twenty-two were treated by injection, three by the internal administration of Fowler's solution. There were eighteen girls and seven boys, aged from 5½ to 14 years, all of feeble constitution, anæmic, and of irritable disposition. As to cause, fright or some other psychical disturbance brought on the disease in nineteen, two were relapses. Only in four could a relation be traced between acute rheumatism and the chorea. At first, in three cases, redness of the skin at the punctures, and in two of them abscesses, developed, and these were subsequently treated by internal medication; but afterwards, when the injections were carefully made in the manner described above, no troublesome complications further set in.

As to the curative results obtained, both physicians are compelled, from their experience with the two ways of giving the arsenic, to give decided preference to the treatment by injection. Where it was employed pronounced improvement set in in a remarkably short time (one to two weeks), and a permanent cure was established by the third or fourth week; at least, only one relapse has been reported. They attribute this favorable result to the more rapid absorption of the preparation given subcutaneously. They regard absolute rest in bed, at least until marked improvement has set in, as a powerful auxiliary, as also a nourishing diet and tonics, especially during convalescence.

They conclude that no one should be deterred from pursuing this line of treatment by the psychical excitement to which the giving of the injection may give rise in some children, or by the slight and easily avoidable local complications, for by this method *brilliant results can be obtained in the largest number of cases, and exceedingly satisfactory results even in the most obstinate cases.—Memorabilien*, 2, 1886.

Osteotomy for Inveterate Equino-Varus.—In a paper on this subject read before the New York Surgical Society on December 8, Dr. Charles F. Poore says: From a study of the bones from feet affected with talipes equino-varus, it is evident that the real trouble lies not in *front* of, but *behind* the medio-tarsal joint; and that all operations on the bones are anatomically and mechanically wrong.

The only operation that of late years has commended itself to surgeons is a cuneiform osteotomy or resection of the tarsal bones in front of Chopart's joint; all others have failed to accomplish the end for which they were performed, and have been abandoned.

Tenotomy of the ligaments commends itself as one from which good results may be expected in infants, because it attacks the structure which is the chief obstacle to the normal development of the astragalus, but it has no influence on the curvature of the os calcis, and this it would seem is the cause of imperfect restitution in otherwise promising cases.

In looking at a dissection of a foot affected with the deformity under consideration, the following points suggested themselves:

1. That the inability to correct the deformity was due to changes taking place in astragalus and os calcis.

2. That, in order to bring the anterior portion of the foot into its normal position, the curvature in the os calcis must be removed and the neck of the astragalus shortened, so as to allow its head to point in the normal direction and thus carry with it the scaphoid and other tarsal bones.

To accomplish this, the following operation was performed: An incision was made from a point one inch and a half in front of the tendo Achillis on the outer aspect of the foot forward to the middle of the cuboid bone, and down to the tendons of the peroneus longus and brevis; these should be raised or pushed out of the way. Another incision, beginning from the middle of the first and corresponding to the neck of the astragalus, was made directly upward; the tissues were then raised from the bones and the periosteum incised over that part of the os calcis from which it was desired to remove the wedge. With a chisel a V-shaped piece of bone was taken away, base outward, and its apex extending to its inner border; a wedge was then removed from the neck of the astragalus of such a shape as to allow the anterior portion of the foot to be brought outward and upward. The periosteum was united with catgut and the skin with several wire sutures, because the latter held longer and gave better support.

An aperture was left posteriorly for the insertion of a drainage-tube; a plaster-of-Paris bandage was applied, extending from the toes to above the knee, and the foot was placed in a corrected position; the wound was dressed with iodoform and gauze.

The size of the V-shaped interval left after the removal of the wedge of bone should be sufficient to allow the anterior portion of the foot to be placed in a proper position without any tension on the tissues on its inner aspect. I think that a subcutaneous division of the ligaments on the inner border of the foot, when they are tense, would facilitate the correction.

The dressings should be as light as possible, not bulky; otherwise it will be found difficult to apply the plaster-of-Paris bandage firmly; a little over correction does no harm.

The advantages maintained for this operation over that of removing a wedge from in front of the medio-tarsal joint are:

1. It is anatomically and mechanically correct.

2. A smaller amount of bone has to be removed, because the operation is performed nearer the apex of a triangle.

3. No joint is opened, and, consequently, the foot is left in a more normal condition.

4. It does not practically shorten the foot in front of the ankle joint.

The class of cases suitable for this operation are:

1. Those of patients who have reached the age of

5 or 6 years with the deformity unrelieved, who have walked on their feet, and in whom the parts are rigid and the deformity marked.

2. Those cases in which, although the anterior portion of the foot can be brought into position, yet require an apparatus to retain the foot in its normal position after years of careful treatment.

3. Those cases in which the obstacle to restitution is due to elongation of the os calcis; perhaps in these patients the removal of a small wedge from that bone would accompany the result.—*N. Y. Medical Journal*, Jan. 15, 1887.

THE DELETERIOUS INFLUENCE OF ALCOHOL ON CHILDREN.—By PROF. DEMME, Berne, Switzerland (22d Med. Report of the Jenner Hospital for Children, Berne). We give the following abstract of the above very timely paper, in which this well known writer lays down his conclusions on this important subject, drawn from most careful study, and formed in a large field of observation, and we feel that in this we are doing our readers a real service, for his views in opposing, and justly opposing, the therapeutic abuse of alcohol, touch upon some very important principles in the treatment of children's diseases.

Demme first cautions against the use of alcohol, in whatever form, as an antipyretic, for although the fever-lowering power of large doses of alcohol cannot be controverted, inseparably combined with this action is the injurious influence of alcohol on the energy of the heart, on the cerebral vessels, and on the cerebral activity itself, and we have a salicylic acid, antipyrin, thallin, etc., agents of a more innocent nature, to accomplish this object.

The use of alcohol as appetizers and stimulants to digestion has been rapidly gaining ground among the people, and our nurslings are given their cognac for this purpose. As a sad consequence of such erroneous dietetic measures, and as a direct result of this too early and too abundant use of alcohol, Demme has met with two cases of cirrhosis of the liver, otherwise so rare in children. Both cases terminated fatally; in both cases the abuse of alcohol was proven, having been begun originally for dietetic purposes; and in both syphilis could be excluded. Furthermore, Demme could, in a considerable number of cases, trace a marked cessation or even a retrogression in mental development to the habitual abuse of alcoholic drinks, which in three cases led to epilepsy, while in two cases acute alcoholic intoxication terminated in this neurosis.

In addition to these five epileptics, Demme could trace twenty-one of seventy-one young epileptics, all of which had been under his own observation, to parents one or both of whom were addicted to drunkenness. An unquestionable rôle as an etiological factor the early use of alcohol played in a number of cases of night terrors and of chorea minor. Demme claims that there can be no question that there are infantile organisms in which even moderate quantities of alcohol not only prove injurious in the accepted sense, but can give rise to severe diseases of the nervous system. The introduction of alcoholic drinks into the infantile organism, be it by the people or by the profession in the usual routine manner, must be absolutely discountenanced.

Alcoholics may be administered to children *only as a therapeutic agent, after the condition of their various organs has been most carefully estimated by the physician*, as a powerful auxiliary in the medical tonic regimen in rickets, scrofula, tuberculosis, and all wasting diseases of chronic character. On account of the stimulating action of alcohol on the nerve centres, especially on the musculo-motor centre of the heart, alcoholics are mainly indicated in pædiatrics to spur on the flagging heart in infectious diseases, in asthenic pneumonia, in cholera infantum, in which latter they also serve, according to Binz, as a respiratory food. But the use of alcoholics as food or as a luxury must be positively denied to children.

A NEW METHOD OF EXCISING THE KNEE.—At the meeting of the Medical Society of London, on December 6, MR. H. ALLINGHAM read a paper on a new method of performing excision of the knee joint. The joint was opened by a long vertical incision, and the patella divided into two lateral halves, which, together with the soft parts, were slipped to the sides of the joint; the crucial ligaments having been divided, the joint was firmly flexed, and a slice removed first from the femur, and then from the tibia; the lateral ligaments were not divided. The whole surface of the joint, and the synovial pouches were then cleared of synovial membrane; the patella, if only slightly diseased, was scraped, and the two halves brought together and sutured; if much diseased, it could be shelled out of the entire quadriceps tendon without destroying the connection of the muscle with the ligamentum patellæ, and the split tendinous expansion, together with the split ligamentum patellæ, could be brought together with catgut-sutures. Drainage tubes were inserted through suitable posterior counter-openings, and the wound closed with separate sutures. The operation must be performed with antiseptic precautions. Mr. Allingham claimed that by this procedure the joint was more thoroughly opened to inspection at the operation; that dislocation of the tibia backwards after the operation was prevented; that the undivided quadriceps antagonized the hamstrings; that progression was better for the same reason, and that the prospect of obtaining movement was greater.—*British Medical Journal*, Dec. 11, 1886.

BINIODIDE OF MERCURY AS AN EMMENAGOGUE.—DR. C. R. ILLINGWORTH writes to the *Lancet*, of January 29, 1887: I find the red iodide of mercury is a certain and safe emmenagogue. My attention was directed to its virtues quite accidentally some three or four years ago, since which time I have used it successfully in a large number of cases. I prescribe it in the form of mixture as follows, but should think it would act quite as effectually in pills of a quarter of a grain twice a day, or an eighth four times a day: ℞. Sol. hydrarg. bichlor., ℥j; potassium iodid., ℥ss; ferri ammon. cit., ℥i; ether. chlorici, ℥ij; aquam ad ℨviii. One teaspoonful three times a day after meals.

THE
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PUBLISHED WEEKLY.

THE EDITOR OF THIS JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, FEBRUARY 26, 1887.

THE ARMY AND NAVY REPORTS.

The Reports of the Surgeon-General of the Army and the Surgeon-General of the Navy for the fiscal year ending June 30, 1886, have just come to hand. The Army Report is a rather miserable looking little pamphlet, without an index, while the Navy Report, though but little larger, is at least substantially and attractively bound, and has an index.

The Army report shows that the last was a year of exceptional freedom from disease, the actual number of admissions to sick report being 3,839 less than for the preceding year, though the troops on the Southwest frontier have had unusual hardships. The ratio of cases of sickness to mean strength of command was considerably lower also than for the previous year. The death-rate, too, fell to a lower rate than at any time within the history of the Army Medical Department. Of interest is the influence of length of service in determining liability to sickness among the troops: the tables show that even in this year of exceptional immunity from sickness in the Army, a greater proportion of sick was furnished by troops under thirty-one years of age; "while up to the age of twenty-five the rate proved so much above the mean for the whole that it may fairly be questioned whether the services rendered by these young men are equal to the cost of their maintenance."

It will be seen that troops in the third year of service, and up to the fifteenth year, afford less than one-half the number of admissions to strength for phthisis to those of any less service; but beyond fifteen years the rate seems to increase. Two years ago malarial fevers occupied the fourth place on the list of diseases, but it is now lowered to fifth place, the number of cases per 1,000 of strength having fallen from 147 to 120 per 1,000, and the rate of mortality .14 per cent. of the cases treated, against .17 per cent. for 1884, and .15 per cent. for the decade. This lowering seems to have been uniform, for no single month has shown any great departure from the normal. Of the 139 military stations from which reports were received 36 showed a higher rate than 120 cases per 1,000, Fort Gibson and Fort Sill, Ind. T., heading the list with 1,287 and 753 cases per 1,000. Considering the dreadfully unsanitary condition of some of the posts it seems a little remarkable that only 76 cases of enteric fever, or 3 per 1,000 of mean strength, occurred during the last year. The number of deaths was about 12 per cent. of the cases treated. During the previous year there were 156 cases, and 222 in 1883. The number of stations at which the disease continued as a result of the infection of the previous year was 19; the number of posts newly invaded was 17; and at 20 posts it ceased to exist. Of the 83 cases of acute articular rheumatism 35 occurred in soldiers under 26 years of age, or 4.14 per 1,000; and there were 41 cases between the ages of 26 and 41, or 2.86 per 1,000. Of the 32 cases of diphtheria 25 occurred at Ft. Assiniboine, Mont., with no deaths. The medical officer in charge, Dr. Henry G. Burton, reported that the task of ventilating the barracks during the winter months was almost impossible.

The report also furnishes some information concerning the health of geographical divisions of the country: "Grouping such stations as are situated on the sea-coast and lakes, we find that diseases of the respiratory organs and those of the heart and its valves had a higher rate of occurrence than in either the river regions or the region of mountain and plateau. On the other hand, there was a decidedly lower rate of occurrence for diarrhœal diseases, for typho-malarial fever, and for the malarial fevers." In regard to the health of troops by military departments it is seen that the Department of Texas stands first on the list, with a rate of 1,641 per 1,000 of strength, and a constant rate of 55 per 1,000; being higher than for the previous year. The troops in this Department seem to show a special liability to malarial, diarrhœal and venereal diseases. In regard to a recently alleged antagonism between malaria and science, it may be seen from a table that the Department of the East shows a rate of admission for malaria to 1,000 of strength of 123.9, as against 33 3 for the Department of Dakota, 46.2 for the Department of the Platte, and 24.6 for the Department of California; and that while the South

Atlantic region furnished a ratio of 136 to 1.000 of strength, the North Atlantic was close upon it with a ratio of 114. Or, to speak more definitely, in regard to the number of cases the Department of the East stands second on the list, with 601. 588 of these being furnished by the North Atlantic region.

As regards rejections of applicants for the service it will be of interest to know that of 16,805 applicants 12 per cent. were rejected for general unfitness, and 57 per cent. of all applicants were rejected on the primary examination. About 4 per cent. (831) of rejections were for defective vision, one case of color blindness being discovered, 72 cases of myopia and 5 of astigmatism. The ratio of rejections among negroes was about one-half less than for whites. There were 237 rejections for diseases of the heart and valves, and 621 for varicose veins. There were 429 syphilitics, the negro applicants furnishing relatively the greater number. Of the 376 rejections for intemperance the rate among white applicants was almost four times greater than among negroes.

The report strongly recommends that a board of competent medical officers be detailed to propose a plan of organization for hospital corps suited to the conditions of the Army. This corps should be made up of intelligent and able-bodied men, who should be thoroughly trained and instructed as cooks, nurses, attendants, and litter and stretcher bearers, so that the Medical Department might be prepared for any emergency. Another serious embarrassment to the Department is the number of disabled medical officers, there being now four who have been recommended for retirement by retiring boards, and at least six others who can do no more active service. The Report ends with some special reports by medical officers, among which are one on "Acuity of Vision as shown upon the Target Range," by Asst. Surgeon, Louis A. La Garde; on "Certain Peculiar Pathological Appearances in Texas Fever in Cattle," by Asst. Surgeon Richard C. Newton; on an interesting and rare case of "Repeated Rupture of the Membrana Tympani by Discharges of Artillery," which resulted in total deafness, by Surgeon C. H. Alden; on the "Treatment of Diphtheria by the Use of Mercuric Chloride Internally and by Spray," by Hospital Steward Bernard Persh; and fifteen pages of interesting "Special Reports on Aneurism," by medical officers of the Army.

In his report Surgeon-General Gunnell says: "I have to invite your attention to the condition of the Medical Corps of the Navy. Its vacancies have not been filled for several years; resignations, deaths, and retirements having depleted it more rapidly than candidates have been obtained. The Bureau has not been willing to lower the standard of requirements; and it is imposible, with the present inducements offered, to find young medical men possessing the necessary qualifications who are disposed to become medical officers of the Navy. The Army Medical Department has qualified applicants far in excess of its needs, attracted by better pay, well-defined rank, and more satisfactory professional position. Since 1870 more than thirty young medical officers have resigned (three of them to enter the Army corps), and I cannot too strongly recommend that prompt measures be taken to increase the advantages and improve the condition of this department." It need not occasion surprise that the vacancies in this department are unfilled. For example, the pay of an Assistant Surgeon in the Navy for the first five years after his appointment is $1700 per annum when at sea, $1400 when on shore duty, and $1000 when on leave or waiting orders. The Assistant Surgeon in the Army gets $1600 per annum for the first five years, and after five years $2200. But after five years in the Navy he gets $1900 when at sea, $1600 on shore duty, and $1200 when waiting orders. This difference in pay between sea and shore duty seems unfair. But that which makes the Navy unpopular with young medical men is the undefined rank and unsatisfactory professional position, especially during the first few years of service; and may the Navy continue to be unpopular until this matter is remedied.

Most of the information concerning the Navy as a whole is embraced in a set of tables. There are, however, some very interesting "Reports and Contributions from Medical Officers," which will repay reading. Medical Director T. J. Turner calls attention, in his report upon the Museum of Hygiene, to the sad condition of the Museum as regards room for exhibits, work and library, and also to the necessity for a clerk: "The clerical duties in cataloguing, indexing, labeling, etc., utilizes most of the time of the medical officers attached to the Museum, and there is but little time left for the pursuit of scientific study." One would scarcely think it a part of the duties of a medical officer of the Navy to perform such highly intellectual and exhilarating work as is here spoken of, and especially in such a place, where there should be every opportunity for study. The Director urges that the number of officers on duty at the Museum be increased, preference being given to those officers who have displayed interest in

and are ready to work upon matters so important to the State as public health. "The tools are here but the workmen are not now on hand." Were the Museum of Hygiene in proper condition very much more good work would be done in it than is now done in matters relating to sanitary science and public health; as is shown by the work done by Surgeon Charles H. White in chemical and commercial analyses. It is proposed to investigate the slow chemistry of concentrated and preserved foods in order to determine the time when their nutritive value begins to decidely decrease and when it ceases.

Dr. Turner calls attention to the value of anacharis alsinastrum—choke-pond weed, order hydrocharidaceæ in modifying or arresting the production of malaria. "Its rapid growth and spread in marshes and rivers where it has been planted, and the cessation and disappearance of malarial and diarrhœal diseases formerly affecting villages and towns about such localities, have been grouped into a relationship. It is now suggested to cultivate this aquatic plant in marshy districts with a view to prevent the production of malaria." It might be suggested that the Government make this experiment in the vicinity of Ft. Myer, Va., Fts. Gibson and Sill, Ind. T., and Willett's Point, N. Y.

Medical Director A. A. Hoehling, gives a very interesting account of the Hôpital des Marines, at Cherbourg, of the Haslar Naval Hospital at Portsmouth, and the Victoria Army Hospital at Netley. It is also interesting to learn from him that the Spanish physicians (near Gibraltar) still bleed in "typhus" fever, and for many diseases, as well as practising the old fashioned yearly blood-letting in the spring on the peasantry. "The descendants of Spanish ancestors about Gibraltar also believe in phlebotomy, and even cattle, when purchased at a distance, are bled on their arrival in order that they may renew their blood in the new climate to which they have been brought. The cattle are said to rebel at the operation at times, which proves *their* intelligence."

Surgeon T. C. Heyl, of the "Marion," reports on that affection the parangi disease, or "Spanish pox," by which the ship was invaded at Colombo. The duration of the disease is about fourteen days. "Even when the crop of pustules was so thick as to become confluent, and the abdomen and axilla were bathed in pus, no scar remains." There are no defined prodromata. The eruption appears quickly, as a large papule, soft, becoming a pustule in twenty-four hours, with a red, angry base, the delicate epidermis only being thrust up by the pressure of pus from beneath. The true skin is not invaded. There is no odor from the pustules or contents, and after the pustules shrivel the flesh remains soft. Its period of incubation is from forty to sixty days. All that is needed in treating it is "not to meddle with it by internal medication." "Segregation, employed for three months, would efface parangi from the face of the earth."

Surgeons J. C. Wise and R. C. Persons call attention to several unsanitary conditions of the Service, and other medical officers complain of the sanitary defects of the vessels. In fact, it seems to be almost as much as one's health or life is worth to be on duty on some of our men-of-war. It might be suggested, especially, that the "Mohican" be turned over to the Museum of Hygiene as an example of what a ship should not be.

The Report concludes with interesting accounts of Japan, some of the Cities of China, and Corea; and a few notes on drugs, among which may be mentioned reports on the use of the Kola nut, by Drs. Gihon and Hudson, and on the "Use of Opium in Fevers," by General Gunnell.

INTERNATIONAL MEDICAL CONGRESS—TRANSATLANTIC RATES.

In THE JOURNAL for the 5th inst. we published an official notice from the Chairman of the Committee of Arrangements at Washington, saying that reliable arrangements had been made by which members wishing to attend the International Medical Congress in Washington September 5, 1887, can be accommodated by the following steamship lines at the liberally reduced rates mentioned, viz.:

Red Star Line—$100, Antwerp-New York and return.

Inman Line—$100, Liverpool-New York and return.

Hamburg Line—$90, Hamburg-New York and return.

Royal Netherland—$80, Amsterdam-New York and return.

Since that notice we have received authentic information that the several lines named have consented to extend the same rates to the families of members, as the following letter shows:

WASHINGTON, D. C., FEB. 14, 1887.

A. Y. P. GARNETT, M.D., *Chairman of the Committee of Arrangements of the International Medical Congress:*

Dear Doctor:—I am happy to inform you that, through the

instrumentality of Mr. Edward F. Droop, agent in this city for the Lines, who has manifested so much interest in this matter, we have been able to secure from the Hamburg-American, the Red Star and the Inman Lines the offer of the same reductions for the families of members of the Congress as those I have already reported for the members themselves. Very truly yours,

J. W. H. LOVEJOY,
Chairman Com. on Transportation.

To aid the work of the Committee on Transportation, the State Department of our Government at Washington has kindly instructed the resident U. S. Consuls at European ports from which the steamships leave, to actively aid in ascertaining the number of those wishing to avail themselves of the reduced rates offered. This is more fully explained by the two following letters:

FEB. 14, 1887.

Editor of the Journal of the American Medical Association:

Dear Sir:—The following additional information relative to transatlantic transportation is furnished for publication:

The White Star Line, as well as the Cunard Line, having declined to make any reduction in fare, you will please strike out *Havre* from the list of European ports last published.

I enclose also, for publication, a copy of instructions which the State Department has kindly sent the resident U. S. Consuls at the ports of Liverpool, Hamburg, Bremen and Antwerp. Very respectfully, A. Y. P. GARNETT, M.D.,

Chairman Committee of Arrangements for the International Medical Congress.

DEP'T. OF STATE, WASHINGTON, FEB. 5, 1887.

Sir:—The Committee of Arrangements of the International Medical Congress, which meets in Washington in September next, desire to ascertain as nearly as possible the number of delegates who will attend the same, with a view of making favorable terms for their transportation. For this purpose you are therefore instructed to bring the matters to the attention of those interested by such means as you deem best, requesting that you may be furnished with the names of such delegates as will attend and the number of ladies who will accompany them. The result of your efforts should be promptly reported. I am, sir, your obedient servant, J. D. PORTER,

Ass't. Secretary.

It will be a great favor to all parties interested in the Congress if the medical periodicals in the different countries of Europe will give the foregoing information to their readers as early as practicable.

AN EXCELLENT EXAMPLE.—The Allegheny County Medical Society, of Pennsylvania, has unanimously voted an appropriation of one hundred dollars towards the expenses of the International Medical Congress. There are many more County and local Medical Societies, embracing a large membership, that could do the same with great propriety, and without incurring the slightest financial embarrassment.

SOCIETY PROCEEDINGS.

ST. LOUIS MEDICAL SOCIETY.

Stated Meeting, January 15, 1887.

THE PRESIDENT, S. POLLAK, M.D., IN THE CHAIR.

FRANK R. FRY, M.D., SECRETARY.

DR. FRANK R. FRY read a paper on

ELECTRICAL DOSAGE.

The question is frequently asked now-a-days by those who are becoming more interested in electro-therapeutics, but who have not especially studied the subject—can we tell the dose of electricity? Can we form a schedule of approximate doses for the various ailments in which we know this agent to have remedial effects? At the last meeting of the American Medical Association in this city Dr. Franklin H. Martin, of Chicago, read a paper on "Electrolysis in Gynecology." In the discussion of this paper Dr. George F. Hulbert, Superintendent of the St. Louis Female Hospital, is reported in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION to have said: "As well use strychnine and quinine without measuring the dose as to use electricity without measuring it with the galvanometer." From this we might infer that the doctor means to say that we can measure the dose of electricity with the galvanometer. In the same discussion, Dr. Geo. J. Engelmann, of St. Louis, in speaking of his methods of operating on fibroid tumors of the uterus by electrolysis, is credited with the following statements: "I know precisely the remedy administered." "The galvanic current must be dosed as we dose other remedies." The inference certainly is that there is a precise means of measuring the dose, and that it is employed by Dr. Engelmann in his work with electricity. Similar statements have been made by other gentlemen elsewhere.

The object of this paper is to attempt to controvert these statements, and, in a general way, the erroneous opinions that obtain about our ability to scientifically or accurately gauge the dose of electricity. It is not my purpose to discuss the results of the therapeutic use of this agent. In regard to the two gentlemen whose names I have taken the liberty to use, it is not necessary for me to say that they are to be congratulated on the results they have obtained, and commended for the amount of careful work they have done in this direction.

In the use of faradic and static machines in medicine, it is at least questionable whether we get directly anything more than mechanical effects. At any rate, we have no data that are available for estimating other effects than these. Hence, in speaking of dosage, we are limited to the galvanic current. In attempting to estimate the dose of this, these items are necessarily taken into account, viz.: the strength of the current, or the quantity passing, its density, and the length of time that it is allowed to pass. I shall consider these items as nearly separately as possible.

Quantity.—The Electrical Congress of 1881 adopted a nomenclature which is being gradually appropriated by the scientific world. Ampère is the word thus selected to express the unit of quantity.[1] It indicates the current carried in one second of time by an electromotive force of one volt through a resistance of one ohm. Most of the recent and best galvanometers are graduated in milliampères. With a good instrument, we are able to know and express, in a universally intelligible manner, the quantity of electricity passing through a patient at any given time. Unfortunately there is not a uniformity in the construction of these instruments. In fact there is no standard galvanometer, and we have no absolute measure of this kind. But we can approach one nearly enough for all therapeutical purposes. This point I may illustrate by comparing the use of galvanometers to that of clinical thermometers. If I tell a fellow-practitioner that I have a patient whose temperature is 104° F., my language is perfectly intelligible to him, unless, perchance, he be one of the few unfortunate old fogies who still eschew the clinical thermometer. But he is not sure that my figure is the patient's temperature. If for some reason he wants to know it exactly, and is very confident of the correctness of his own instrument, he will try that. Even then he is not sure, and can only be so by comparing his to a standard thermometer. For ordinary purposes, however, the better class of clinical thermometers are accurate enough. The better kinds of galvanometers do not correspond as nearly in their readings as do thermometers; also they are very much more liable to become defective. But with due care in selecting and occasionally examining the instrument, a good galvanometer is of much practical use in our every day work with the battery; and, as a means of enabling us to express the results of our work to the scientific world, it is now indispensable.

Density.—With the galvanometer we cannot measure the dose. It takes no account of density, quite as important an item as quantity, practically more so. It is a fact, experimentally proved, that a current must be of a certain density before any appreciable physiological effects are produced. Hence we may expect practical therapeutical effects only from currents of considerable density. Practically we estimate the density from the area of the electrodes. To illustrate, if I take two very large electrodes, good conductors, with covers well moistened with salt water, pass a current with them in firm contact with the skin, I see that the galvanometer shows a current strength of thirty milliampères. My patient is not conscious of a current. Now I substitute for one of the large electrodes a much smaller one; when I complete the circuit, the galvanometer shows a strength of but 15 milliampères. The patient feels a tingling in the skin under the small electrode. Although there is a less quantity, the density is greater. By substituting the small for the large electrode, I have increased the external resistance. If I want to get the same quantity as with the large electrode, I must increase the electro-motive force sufficiently to overcome the increased resistance. This I do by switching in more cells, and, of course, in so doing I still further increase the density. We know that with a given quantity, the density in the various parts of the circuit will be inversely proportionate to the transverse section of the conductor. Therefore, if we know the square surface of the electrode and the quantity of electricity in the circuit, we may estimate the density on the electrode. For example, if the galvanometer shows a strength of 8 milliampères, and the electrode is 8×6 cm. ($=48$ sq. cm.), I know that I have a current of 8 milliampères spread on a surface of 48 sq. cm. It has been ingeniously recommended to express this relation in the form of a simple fraction, for the numerator of which we write the number of milliampères, and for the denominator the surface of the electrode in square centimeters. Using the figures just employed to illustrate, 8 milliampères on a surface of 48 cm. would give the fraction ($8.48=$) $\frac{1}{6}$, indicating that one milliampère is spread on 6 sq. cm. of the electrode. Hence, with a galvanometer and electrodes of known area, we can express mathematically the density on the electrode. With this fact in view, the advantage of employing electrodes of known, definite areas is apparent; as is also the convenience of standard or normal sizes, by means of which we may more readily and intelligibly express our methods of applying electricity. But we must remember that we cannot thus determine the density in the body, or portion of the body, through which the current passes. Roughly speaking, if we know the density on the electrode and the area of the transverse section of the portion of the body included in the circuit, we may approach an estimation of the density of the current in the same, mathematically. If the sectional area of such a part be 300 sq. cm., and the surface of the electrode 1 sq. cm., the density of the body will be 1-300 of what it is on the electrode. For obvious reasons this is a very unprecise calculation. The current tends to travel in straight lines, but also to spread on the conductor. This is conveniently represented in the shape of a diagram (illustrated). The density is much greater, as the lines show, near the electrodes, decreasing as we depart from them. It is also greater in a direct line between the electrodes. These differences of density we cannot estimate accurately. Before we can we must know more than we do about the resistance of the body in health and disease. This point is being now studied by prominent electricians, with more promise of satisfactory results than ever before. The showings of recent investigations would seem to indicate that there will be necessity for radical changes in the current theories of electrotonus, polarization and other phenomena connected with the application of electricity to animal organisms. I mention these facts as merely suggestive of the magnitude, as well as the unsettled condition of the problem of the resistance of the human body. Yet its importance as an item in the matter of dosage is evident.

[1] The coulomb is the unit of quantity, ampère is the unit of current, and equals a current of one coulomb per second, and is as defined above. See discussion of paper.

Length of Séance.—Regarding the length of time that the current is allowed to pass, little need be said for our present purpose. We all agree that weak currents may be continued longer than strong ones, that a séance may be longer with some individuals than with others, and that it must vary with the varying conditions of the same patient; that the length is often limited by very apparent physical defects, etc. These points are determined, and, in the nature of things, always will have to be determined, in every case, by the individual experience and knowledge of the operator. A remedy, no matter how simple, is only used to the best advantage by one having a large individual experience with it. This is more true of electricity than many other remedies. With an increasing experience, we discriminate more successfully between suitable and unsuitable cases for its use. Experience also will determine our methods of employing it. The use of very few remedies can be reduced to a scientific method, so that we may express in terms of mathematical accuracy the conditions requiring their exhibition or the size of doses. In this respect electricity conforms to the majority of remedies. Data do not exist from which we may construct scientific formulæ to guide us in making the dose for use in any of the various ways that we know empirically to be beneficial. Especially is this true when we are seeking to get its physiological as distinct from its mere physical effects. These facts should not discourage us, nor cause us to underestimate the honest, successful work that has been done. The necessary admission of them should be a stimulus to greater endeavor in attaining to methods less liable to error. In this spirit, all who are sufficiently informed on the subject, will remark with much satisfaction the increased manufacture of galvanometers available for clinical purposes, and the correspondingly increasing tendency to employ these instruments, as well as electrodes of graduated sizes. An accuracy in the application of electricity is attainable with them that without them is impossible. There is, however, much room for improvement. It will probably be some time before these more accurate means are as universally employed as they should be. As evidence of this, I offer the following: Recently I have written to a number of prominent neurologists who make a more or less extensive use of electricity in their practice. I asked each of them (1) how constantly he used a galvanometer, and (2) for what purpose or purposes he used it. They all very kindly replied. I quote some of them as follows:

Dr. ——, Cincinnati: "I always use a galvanometer with my large office battery. It is one I procured a number of years ago in London; but, for some reason I do not understand. it has lost its delicacy, and is no reliable guide in diagnosis and therapy. The most valuable galvanometers have been constructed in the last two years, but I have neglected to secure them." Dr. ——, Brooklyn, N. Y.: "I seldom use a galvanometer, and only when I wish to pass the current through the brain of a sensitive person, or some equally delicate work. I don't depend on it even in the most delicate operations." Dr. ——, Chicago: "I do not use a galvanometer constantly. I never saw one that was entirely satisfactory. I should not use one constantly if I had a perfect one, however, because they in no way assist me in making my applications further than they demonstrate to me the condition of the battery. In small operations, I find that currents of like strength, on different days and under different conditions of the atmosphere, different conditions of the parts to which the electrodes are applied, differ so much in their effects, that I have never been able to get any great good from knowing just how much electricity accomplished the given results." Dr. ——, St. Paul, Minn.: "I have a galvanometer (simply a magnetic needle surrounded by a coil of fine insulated wire), but I never use it. I depend on myself. The electrodes applied to the tongue and sides of the face is an exceedingly sensitive galvanometer, and one that never gets out of order. The time when a galvanometer would be of most value is when the current is applied to the head. But, as I said, even in those cases I am my own galvanometer."

The first of these gentlemen has been, by his own admission, negligent in this matter. The others are mistaken. The source of their mistake is, I believe, in their failure to appreciate for what purposes the galvanometer is to be clinically used, and the advantages to be thus gained. I venture the prediction that a year or two hence, if asked the same questions, their replies would be more uniform, and in substance as follows: "In private office practice I always use a galvanometer when I use the constant current, for the purpose of knowing at each and every application how much current is passing through the patient's body; in other words, what current strength I am using." This is the reply to the readers' questions received from the chairman of the committee on electrical dosage that reported at the last meeting of the American Neurological Association (*St. Louis Courier of Medicine*, October, 1886, page 325).

Stated Meeting, February 12, 1887.

THE PRESIDENT IN THE CHAIR.

DR. T. F. PREWITT presented a

PATHOLOGICAL SPECIMEN FROM A KNEE-JOINT.

It was first located below the patella, later at the left side of the joint. At first it caused little annoyance, afterwards a great deal. It was removed under antiseptic precautions. Before removal the body seemed to be but half its actual size, because only half of it could be felt through the tissues.

DR. PREWITT also presented a

COMPOUND COMMINUTED FRACTURE OF BOTH BONES OF THE LEG.

It was taken from a man who had fallen sixty feet with a falling scaffolding. The accident occurred in a brewery in East St. Louis, where ammonia is used. The pipes broke and the gas was inhaled by the patient, so that the lungs were much irritated. This

was the cause of some fever, and it was difficult to say how much was due to this and how much to the injury of the leg. The physician who first saw the case removed a great many pieces of bone; found some hæmorrhage, which he succeeded in stopping; tried to find the bleeding vessel, but failing, put the limb in plaster. About four days afterwards bleeding began. He opened the wound and attempted to stop it with styptics; got it controlled, but the hæmorrhage recurred, the patient losing much blood. He was brought to St. Louis and put in St. John's Hospital, about ten days afterwards. The wound was full of pus burrowing upwards and downwards in the the leg. I cleaned the wound to determine where bleeding came from. I was called the following morning, to find that the patient had lost a considerable amount of blood. I was satisfied that the only alternative was amputation. I had supposed that it was the posterior tibial artery bleeding, but it was the anterior. In it is an opening 5 lines in length and 3 lines in width. This is where the bleeding came from. The hole in the artery is not the result of sloughing, it is a part of the original injury. There has been a good deal of fever before and since the operation; as high as 102.8° F. The wound was in a septic condition. It was not prudent to make flaps. I made a circular amputation and left it freely open. In the last three days his temp. has been 99.8°, and I think he is in a better condition.

Dr. Meisenbach asked what form of styptic was used by the physician?

Dr. Prewitt said he thought it was Monsell's solution, or the chloride of iron.

Dr. Pollak asked as to the condition of the lungs.

Dr. Prewitt: He had a cough and soreness about the lungs, but I have found no pneumonia. He can hardly speak above a whisper.

Dr. Dean, referring to the unfinished discussion on Dr. Fry's paper at the last meeting, would like to answer Dr. Engelmann's remarks of that evening in full, but the gentleman is not present. I understand the paper to say, "With the galvanometer we cannot measure the dose. It takes no account of the density." Then follow the experiments, first that with the two large, equal-sized electrodes, causing little feeling on the part of the subject, and secondly with one of the electrodes small, the result being a tingling of the skin under it, a less number of milliampères by the galvanometer, a less quantity of electricity and greater density.

The density in any part of a given circuit and current is inversely proportional to the sectional area of that part, and nowhere in the circuit can it be greater than in the smallest part of that circuit. The number of milliampères also of current passing through a circuit can be no greater than passes through that part of the circuit furnishing the greatest resistance. That the resistance is not mainly in the smaller sponge electrodes may be shown by applying first the large sponges, secondly the large and small sponges, directly to each other, without the intervening part of the subject, when no such disparity will be shown by the galvanometer, making due allowance for imperfect coaptation of the irregular sponge electrodes. The resistance of the circuit is mainly in the epidermis of the skin. It is the chief resistance of the body, the aggregate resistance of which is said to be more than twice that of the Atlantic cable. Increase the area of the skin under the electrode, and you decrease the resistance of the circuit; especially so, as the ducts of the sebaceous glands and of the sweat glands are better conductors than the horny epidermis. The resistance will vary if the small electrodes be applied to different parts of the surface previously covered by the large electrodes. The number of milliampères shown on the dial of the properly calibrated galvanometer will accurately indicate the current strength. Time must be considered to know the number of units of quantity administered. The resistance can be measured by the rheostat. The density of the current at the entrance of, and exit from, the skin, may be estimated from the areas of those parts of the skin covered by the electrodes. Cut the patient out of the circuit, after having noted the number of milliampères, switch in a resistance equal to that of the patient, and then apply the electrodes directly to each other, and the galvanometric deflection will be the same as with the patient in circuit, showing again that the main resistance was in the skin or person, and not in the electrodes. Of course, the chemical, physiological, physical, or therapeutical effects of electricity require taking many things into consideration. If the paper intends this, as I think its general tenor nearly proves, then I would agree with it if it stated instead: "With the galvanometer only, we cannot measure the therapeutical dose of electricity." The like is true of other dosage. With the apothecary scales only, we cannot measure the therapeutical dose. The scales do measure the actual dose of any given ingredient, and that is all that is expected of them. One or three minims of sulphuric acid, weighed or measured, are a definite quantity. If given pure, the effects will be quite different from what they would be if given diluted to 10 or 30 minims, as in the pharmacopœial diluted sulphuric acid; and then the effects will be different if this dose is largely diluted with water, and taken at the back of the mouth through a glass tube; and even then many things are to be taken into account, and cannot be fully followed, as diffusion, changes in the body, etc. We cannot send it to this or that organ or part with any definiteness. (Even in preparing the pharmacopœial dilution, it is essential to add the acid slowly to the water, and not to pour the mass of water upon the acid.)

I agree with the paper, that the mere possession and use of a galvanometer are not all of electrotherapeutics, however essential the use. Every discoverable factor must be known and used—no more so, however, than in other departments. The mere possession of a microscope, and looking down through its tube, unravel or reveal very little of the microscopic world.

Dr. Fry said he understood the point made by Dr. Dean. But in dosage the skin must be taken into account, the physical as well as the physiological effects have to do with therapeutic results. With

strong currents he had often seen neuralgias, sciatica, for instance, benefited. The current was often strong enough to blister some. He considered the good results in these cases very largely due to the physical effects. Probably the nerve was traversed by the current, producing physiological effects that helped also. He thought that Dr. Dean and he agreed. The density on the skin is estimated by the size of the electrode. This, of course, can only be done when we know the quantity, which is shown to us by the galvanometer, it being an essential means of estimating density as well as the size of the electrode.

Last Saturday evening Dr. Dean had called attention to a technical inaccuracy in the paper, in that the ampère is said to be the unit of quantity. The coulomb is the unit of quantity. An ampère is a current of one coulomb per second. The ampère, therefore, includes the coulomb. Both of these units were embraced in the old term Weber, which is now going out of use. The error had been made inadvertently in trying to use language as free from technicalities as possible.

In reply to Dr. Dean's question as to where the increased resistance was when a small was substituted for a large electrode, he said to a slight extent in the smaller electrode, but principally in the skin. We use large electrodes to overcome the resistance of the skin. Professor Stone, an English experimenter, believed this resistance could be reduced to *nil* by using very large lead electrodes, moistened with salt water.

To a question by Dr. Hurlbert, if he used the term density in the same sense as potential? Dr. Fry replied in the negative, and showed by a diagram that potential referred to the electric-level.

DR. HULBERT thought Dr. Fry had demonstrated that it is a necessity that we use the galvanometer in the accurate application of electricity. He understood the term potential to mean the power the current has of accomplishing a certain work; the power of overcoming resistance. This term conveniently conveys to our minds a clearer idea of the effects of electricity physiologically.

DR. DEAN: Potential represents the degree to which a body is electrified. A difference of potential is a difference in electrical-level. Back of that is the electro-motive force at work within the cell that creates and keeps up the difference of potential. Work does not include the element of time. Power includes the work and time or rate. The term "tension" is dropped for potential. The term strength (of current) is supplanting the term "intensity" (of current), which is a bad imitation or translation of the French *intensité*, which, in electricity as in music, means strength.

DR. LEE mentioned the fact that bichromate of soda was much better than bichromate of potash for use in making battery-fluid.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, January 26, 1887.

THE PRESIDENT, J. SOLIS-COHEN, M.D., IN THE CHAIR.

DR. THOMAS S. G. MORTON read a paper on

ABDOMINAL SECTION FOR TRAUMATISM, WITH REPORTS OF FIVE CASES.

(See page 225).

DR. CHARLES B. NANCREDE said: I understood Dr. Morton to say, that the case of suture of the intestines for ball wound which he reported was the first so treated in Philadelphia. He is mistaken, for I operated on a case of gunshot wound of the abdomen some seven months ago, and reported it to the Academy of Surgery three months ago. I should like to compliment the Doctor on the immense amount of labor evidenced by his paper. I think this is a timely subject for discussion. Some three months ago I had the privilege of taking part, by special invitation, in a discussion on gunshot wounds of the small intestine, which took place in New York; and was participated in by most of those who had operated up to that time. The conclusion arrived at was that all penetrating ball wounds of the abdominal cavity demand at least an exploratory operation, and if any wound of a viscus be found its repair should be attempted. I should like to enter a protest against the evident tendency to advise the opening the abdominal cavity by any practitioner in every ball wound. Where a large tumor has been removed the abdominal walls are lax, and there is plenty of room for manipulation. In laparotomy for gunshot wounds or other injuries, the difficulties are ten-fold. You have to operate through a tight and narrow opening. In prolonged operations there is often difficulty from distention of the intestines. The difficulties in finding the wound are sometimes exceedingly great, so much so that if I had a ball wound in the abdominal cavity, unless I could be operated on by one who was in the habit of doing abdominal operations, I should rather trust to the old let-alone plan. I have seen undoubted penetrating ball wounds of the abdomen recover.

Let me say a few words about my own case which, I think, shows the important point, although I could not secure a post-mortem, that peritonitis is not the only thing we should dread. I saw the boy six hours after he had been shot. The wound was a little to the left and above the umbilicus. He vomited blood one hour and a half after admission, although the operation showed that both the anterior and posterior walls of the stomach had been perforated. I determined that the wound was a penetrating one and made an incision in the median line; and I would warn any against enlarging the existing wound, if not in the median line. I found a wound of the anterior wall of the stomach which I closed with fine silk, using a fine sewing needle. Then I found a wound in the anterior wall of the duodenum which I sutured. I next looked for and found a wound of the posterior wall of the stomach. A

large ragged wound in the posterior wall of the duodenum was also discovered. Examination from the stomach down almost to the ileo-cæcal valve revealed no other wound. A careful toilet of the peritoneum was made and the wound closed. The boy did well for forty-eight hours and never presented the least symptom of peritonitis. When peritonitis comes on suddenly there may be a profound condition of shock which will not admit of rise of temperature, rigidity of the abdominal muscles, flexion of the limbs, upon the pelvis, pain, or any of the usual symptoms, but this is not the case in slowly developing peritonitis. The boy died on the third day with a series of convulsions with very high temperature. I believe that he died of sapræmia, due to the absorption of ptomaines. The cold water coil, which was used almost from the outset in both of the successful cases of Bull, of New York, was not used, and I think more opium was given than was wise. We have long been taught to give opium in full doses in traumatic peritonitis, but I believe that many cases are killed by this treatment. When the initial symptoms are marked by collapse, low temperature, rapid, feeble pulse, and clammy skin, if you give large doses of opium simply to ward of the expected inflammation, you will probably kill the patient. If you give moderate doses of morphia with large doses of atropia, you will possibly rally the patient and carry him over the shock stage. I think that large doses of opium should not be given in peritonitis unless guarded by atropia. It should be given by hypodermic injection, for you do not know how much will be absorbed from the stomach. At the end of a peritonitis where, from the respiratory centres becoming involved and from interference with the action of the diaphragm by tympany, hypostatic congestion of the lungs is taking place, persistence in the use of large doses of opium will kill the patient. If the opium is reduced to a minimum and given with large doses of atropia, or atropia alone is exhibited you will sometimes tide the patient over.

I think we should offer a word of warning against the tendency to operate on every case of abdominal wound without proper precautions. It should be done by a skilled hand. Not every case is fitted for it. The condition of the patient should be carefully considered before such an operation is attempted, and I hope the Society will be careful how it endorses an operation of this kind as the *rule* for penetrating wounds without further light upon the subject.

Dr. S. S. Cohen said: Dr. Morton has spoken of the injection of hot water into the abdominal cavity for the purpose of restoring the pulse in cases of severe shock and collapse. It may be interesting to mention that Dr. Benjamin Ward Richardson records successes following injection of hot milk into the abdominal cavity for the purpose of restoring patients in the collapse of cholera. The same measure has been used successfully by others. Dr. Morton also stated that he knew of no case in which poisoning with boric acid had occurred. Such a case has been reported in the *Medical News*, some two years ago, by Dr. Brose, of Indiana.

Dr. G. G. Davis said: We have been taught that penetrating wounds of the peritoneum are not to be probed. The author has mentioned this as one of the means of diagnosis. If other diagnostic points are present, probing is not necessary; still, I think it is justifiable to use the probe if it is done antiseptically. The time of probing was not touched upon. This, I think, is a very important point. When called to see a man who has been shot in the abdomen or any other part of the body, the question arises whether or not it is justifiable to probe the wound at once. I believe that it is not; unless certain precautions are taken and unless the surgeon is prepared to follow up his examination, if necessary, by operation. If there is hæmorrhage it requires attention. Outside of that I can conceive of no circumstance which will require immediate manipulation of the wound. The examination should be deferred until the patient is brought to the hospital or to his home, and the examination made once for all, at the time when the surgeon is prepared to go on with the operation, if one is necessary. The indiscriminate examination of Garfield's wound was severely criticised by Esmarch, and he had good grounds for his criticism. I have not seen many cases of gunshot wound, but I can recall three cases in which the abdomen was involved. In none of these was any operation performed, and they all speedily died. If the operation is to be done, it should be done early. The cases which I have seen remained in a comparatively good condition for a few hours, but toward the end of the first or second day many of them will die, particularly if the wound is a large one. They seem simply to sink away.

As regards the use of hot water injected into the abdomen, a less radical method is the injection of the hot water into the rectum, which is frequently used, and which I employed at least six years ago. A temperature of 108° to 110° will be found comfortable.

Dr. Morton: In regard to Dr. Nancrede's remarks, they are practically covered by what I have already said. The question of what cases should be operated upon, and by whom, is still under judgment. It would seem to be the judgment of the majority that all cases of penetrating wounds should be opened. The probe would only be used where you were prepared to operate if necessary. In many cases the ordinary signs of peritonitis are perfectly worthless. The case of ruptured intestine which died presented no apparent symptom of peritonitis.

In those cases where intraperitoneal injections have been made in cholera, it has been on account of the empty condition of the blood-vessels. Here it is commended for the treatment of shock, pure and simple. It is simply the application of heat. The use of hot enemata has long been practised in the Pennsylvania Hospital, but it is not so satisfactory as large hot water irrigations at a temperature of 100° to 110°.

With regard to the question of mortality, the table shows the total mortality of cases reported. It is probable that the real mortality is even larger. Every successful case has doubtless been put on record, while it is likely that many unsuccessful

cases have not been published. The table also includes the first cases operated upon, and I think that the next three years will show a great change in the mortality. It will probably get to and remain at about 50 per cent. Many of these operations were performed without the knowledge of abdominal surgery which we now have, and many of those who operated may have had no experience with abdominal work.

Most of these cases of traumatism involve the question of murder. If we save 30 per cent., perhaps fifteen of these will be murder cases, and on the life of each of these patients would depend that of another person, so that we should really save forty-five lives.

STATE MEDICINE.

MEDICAL LEGISLATION IN ARKANSAS.

Resolutions of the Izard County Medical Society.

We have carefully examined the existing Law to Regulate the Practice of Medicine and Surgery in the State of Arkansas; and, inasmuch as it ostensibly purports to protect the medical profession and the general public from incompetent physicians, and unscrupulous charlatans and quacks, we desire to say, with due respect to the makers of the law, that it is a total failure in our opinion for the following reasons:

First. The law directs that all persons who have been in the practice of medicine for a period of five years previous to the passage of the law, be allowed to continue in the practice, provided their names be registered in the clerk's office in their respective counties. By this means all incompetent practitioners of *five years'* standing were allowed to continue under the protection of the laws of the State.

Second. The law provides that the County Judge of each county appoint a board of three physicians in his county, which shall constitute an Examining Board for all who might apply for license to practice medicine; and, which shall, at its option, grant license to any applicant. The County Judge was, in some instances, incompetent to appoint a board intelligibly; and in some instances these officials selected their boards through favoritism rather than from merit. In this way incompetent boards have been appointed. These incompetent boards more frequently make the paltry fee, than merit, the requisite qualifications for license.

Third. The law requires that all persons who have been in the practice of medicine for a less time than five years go before the board of his own (or some other) county, and submit to an examination, and pay said board a fee of six dollars before being allowed to register his name as competent to practice medicine. Here the law is *unfair* and *unjust;* it compels the *intelligent* and *conscientious* physician to submit to the indignity in some instances of being examined by an incompetent and ignorant Examining Board; it compels young men who have spent their time and money to qualify themselves for intelligent physicians to submit to the same ordeals that the most ignorant must undergo.

Fourth. There are instances in which persons who could not get license to practice medicine in their *own* counties have gone to *other* counties and obtained license, and returned to their *own* counties to practice medicine. By this means we know of no failures to get license, even by the most ignorant applicant.

Fifth. The law instead of elevating the standard of intelligence and honesty in the medical profession, has a direct tendency as far as legislation can effect it, to lower its standard by legalizing quackery and ignorance, and by lowering honesty and intelligence to the same grade with dishonesty and ignorance, thereby tending to discourage young men from properly qualifying themselves, and inviting ignorant practitioners and unscrupulous quacks into our State from surrounding States, which have passed sensible laws to prevent that class from practicing within their borders.

Sixth. The general public, confiding in the intelligence and honesty of our Legislators, and knowing no criterion but experience, have in a great measure learned an expensive lesson, for it is the public which has received the principal evil results of this most unwise law.

NOW, WHEREAS, we believe the above statements are facts—that the present law encourages and protects ignorance and quackery; that it invites the incompetent class of medical practitioners from other States; that it discourages our own young men; that it elevates ignorance and degrades intelligence to a common level, as far as lies within the reach of legislation to accomplish it; that it is deceptive to a confiding public; that it is, useless, unjust, and an insult to a conscientious and intelligent medical profession, and to an intelligent and confiding public; therefore, *Be it Resolved,*

First. That the medical profession is ancient, time-honored, coeval with civilization, and has ever been an essential factor in every advance made in the development of science and in the promotion of human happiness; and that those who are worthy members of the medical profession are engaged in a grand and a noble cause.

Second. That as the medical profession has for its object the health, well being and happiness of the human race; it needs no legal protection to perpetuate its existence or to promote its progress, but it is the public which is imposed upon by quackery, that needs legal protection.

Third. That we esteem the existing law a farce, a a fraud, and as unworthy a place on the Statutes of the great State of Arkansas, and we recommend that our next Legislature repeal it; and if it must have a law, that it enact one that will protect the *public* from the numerous ignorant pretenders who are now resting under the protection of the present law.

Fourth. That we will not serve on the County Board, nor will we accept a certificate from any County Board as sufficient evidence or authority as to any physician's qualification.

Fifth. That we respectfully submit these resolutions to the medical profession of the State of Arkansas, and ask it to give them its careful consid-

eration; and if they meet with the approval of the profession we ask the various Medical Societies in the State to join us in presenting these resolutions to the next Legislature.

FOREIGN CORRESPONDENCE

LETTER FROM LONDON.

(FROM OUR OWN CORRESPONDENT.)

The Health of London—New Remedy for Whooping-Cough—Death of Mr. Thomas Ward Jeston.

Two interesting communications regarding the health of the city and the health of London at large respectively have recently been made public. The report regarding London and its health is contributed by Dr. Lewis Parkes, who writes on the death-rate of the metropolis at large. Here there is to be found cheering news for Londoners, in the assertion that during the last forty years the death-rate has steadily diminished. Dr. Parkes's figures prove this clearly. The average death-rate per 1,000 living persons for the following periods of five years shows in each case a gratifying diminution of mortality. From 1846–1850, the death-rate as above defined was 25.4; from 1851–55 it was 24.7; from 1856–60, 22.5; from 1861–5, 24.5; from 1866–70, 24.3; from 1871–75, 22.9; from 1876–80, 22.2, and from 1881–85, 20.6. Dr. Parkes points out a significant fact in connection with the vital statistics of London, when he notes that since 1876 the birth-rate has also steadily diminished. In 1876 the birth-rate was 36.5 per 1,000, in 1885 it was 32.6. This is the lowest birth-rate recorded since 1850, when it was 32.05. The result of this fall in the birth-rate, curiously enough, as Dr. Parkes points out, will be to increase the death-rate. In other words, if the death-rate remains steady, as regards lowering influences and actual disease, the limitation of populace through a small birth-rate will raise the mortality returns, this result being due simply to the altered distribution of age which the population would necessarily exhibit. Facts like these afford food for thought when the constant cry of overcrowding rings in our ears. It is a possibility of the future that the adjustment of population in great centres may be wrought out on some such basis as Dr. Parkes indicates. We shall be in the position of a population which, while not excessively increasing in numbers, exhibits a tendency to longer life on the parts of its units. Grave questions of political and social economy may wait on the striking of such a balance between increase and decrease, but as the matter stands, it would appear that the character London has acquired for health is founded on a perfectly correct appreciation of its sanitary merits. Probably the area of London is so wide and so varied in its character that it presents localities for habitation suitable to many types of life and constitution. Be this as it may, the facts justify the hope that our death-rate may be still further and speedily reduced.

The communication concerning the City of London is from the pen of Dr. I. Ebbetts, and deals with the sanitary state of the City proper. He reminds his readers that in more than one sense the City is admirably engineered, namely in respect of its roadways, its scavenging and its sewers. The sewers extend about forty miles in length. They have to convey the sewage of several outlying districts as well as the sewage of the City proper. This duty these great conduits discharge in a satisfactory fashion, being kept in due order by a staff of an inspector, a foreman, and some eighteen men. As regards the public carriage of waste, the City of London has little to complain of. Mr. Ebbett's protest is reserved for the private drainage arrangements of the City. The perfection of house drains is admitted the backbone of all sound sanitation, as it is the chief element in the preservation of domestic health. Elsewhere there are by-laws—the model by-laws of the Local Government Board—which regulates the fittings of house drains, and which provide especially for an air trap between the house drains and the sewer, as well as for the erection of a ventilating pipe from the highest level of the house drain itself. Again such by-laws forbid the use of the pan-closet, as well as that equally noxious appliance the D trap. So far such by-laws effect a good purpose in pointing the way to better things, and in most districts their laws are adopted. However, in London City there are practically no regulations regarding the method in which house drains shall be constructed. The commissioners of sewers are possibly appalled by the magnitude of the changes which their operation would make. Mr. Ebbetts does not advance his charges without knowing his facts. People are accustomed to speak disparingly of Parisian sanitation, to lament the odors of the sewers, but even in Paris they enforce regulations concerning drains and soil pipes, and insist on the ventilation of the drains. In the City of London neither of these provisions appears to be regarded as necessary for the health of the inhabitants. When a house is about to be constructed in the City, the builder submits a plan of the basement, showing the positions of the various rain and soil pipes, and other sanitary appliances. The commissioner's engineer settles the size of the drain which is to be laid, and the commissioners, at the owner's expense, construct the drain from the sewer to the front wall of the house. There need be no air shaft or efficient trapping. He may join or construct his pipes precisely as he thinks fit, and in a sanitary sense the builder is, within the walls of a city tenement, monarch of all he surveys. There is an iron flap, it is true, fixed, at the owner's expense, at the junction of the city house-drain and the sewer. This flap opening outwards only, is believed to prevent the access of rats and the ingress of sewer air, but as Mr. Ebbetts shows, sewer gas is far too insidious a visitor to our houses to be kept out by an iron flap. Mr. Ebbetts asserts that there is a gross neglect of the common precautions of the time against disease in the city, and shows that abutting on the city district, without drain regulations at all, there are districts regulated by at least fairly efficient by-laws.

New remedies for whooping-cough continue to

crop up. Quite recently Dr. Suckling thinks he has found a specific for pertussis in carbolic acid—or nearly so. He says he has used the glycerine of carbolic acid with great success among his out-patients at the Children's Hospital. Half a minim of the glycerine of carbolic acid given in peppermint water is sufficient for a child a year old.

Mr. Thomas Ward Jeston, J. P., the popular and well-known founder of the Reading Pathological Society, has just died at an advanced age. In early life he was an army surgeon, in the 36th regiment of foot, throughout the Peninsular war, until quite recently he took great interest in the working of the British Medical Association. G. O. M.

DOMESTIC CORRESPONDENCE

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Social and Physiological Inequality — New York Water Supply—Abuse of Medical Charities—Manhattan Eye and Ear Hospital—Medical Society of the State of New York.

At the February meeting of the Section on Public Health, Hygiene and State Medicine of the Academy, Dr. Henry D. Chapin read a valuable paper on "Social and Physiological Inequality," in the course of which he said: The question of the hour is the social problem, and the new science of sociology overshadows all others. The air is full of the angry clamor raised by different classes, all arguing from the standpoint of their own interests. It is evident that in the present state of society many are hopelessly worsted in the effort to gain, not a competency, but a moderate sustenance. The mutterings of discontent heard on all sides have their basis largely in the belief that the fault lies in a friction resulting from an artificial social order.

It is a favorite corollary of our political system that all men are born equal. In fact, there is no such thing as equality. Two stupendous factors are present in all life, physical as well as mental, viz.: heredity and environment. These all-controlling influences are present for good or evil in varying proportions in different lives. With the generation of life, heredity, whose mysterious effects we must recognize without understanding them, has done its best or worst for the beginning of existence; its potency has been in the past acting, perhaps, through long reaches of time. With commencing life comes in the new element of environment, as the complement of heredity to enhance the evil trait, or perhaps obliterate it—too often to sow the seeds of physical and mental weakness in a constitution that received a healthy start.

To insure correct environment and habit, particularly in the early years of life, is of vital importance to the well-being and efficiency of the individual. This, unfortunately, is not, and in many cases cannot be, done. Hence the fearfully unequal physical, mental and moral equipment of mankind, that allows the minority to have too much, the majority too little of the world's necessities and comforts. Such problems as how to conserve and prolong life, how to lower the death-rate in children, how to produce good hereditary development, how to strengthen the bodies and minds and enlarge the spiritual bounds of men—all these and many others are included in a conception of this subject.

No altered laws will compensate for defective knowledge or will-power in the regulation of human affairs. Two leading theories have been advanced to reorganize society, socialism and communism. As human society is constituted, these are idle fancies. Legislators cannot prevent the unerring economic law due to fundamental differences in men's moral and intellectual development. Modern civilization is adapted to make the sharp sharper and the dull duller, or, in other words, conduces to condensation of wealth and diffusion of poverty. All artificial adjustments only complicate existing troubles in leaving untouched the real causes of the troubles. The lazy and criminal classes are the inevitable product of our complex civilization. They are developed by laws which it is the duty of good people to find out and obviate. It is the business of government to prevent or mitigate any environment that all experience shows will produce physical, mental and moral deterioration.

Dr. Chapin spoke particularly of the tenement-house system and its evils, and after the paper had been discussed by Drs. Spitzka, Janes, and Stephen Smith, Bishop Huntington, Mr. Charles F. Wingate, the sanitary engineer, and others, a resolution was adopted requesting the Academy of Medicine to use its influence to secure the passage of the act now before the State Legislature enforcing the registration of tenement-house owners at the Health Department, and other regulations for the welfare of the tenement-house population.

In his report to the Mayor of the work of the Department of Public Works for 1886 the Commissioner, Gen. Newton, states that during the year 5,270,000,000 gallons of water were drawn from the storage reservoirs and lakes in the Croton Basin for the water supply through the Croton aqueduct, and 2,670,000,000 gallons from the Bronx River reservoirs for the supply through the Bronx River conduit. There are now 604 miles of water mains and 14,582 water meters in use in the city. The amount of revenue from the water service in 1886 was $2,354,121; being an increase of $223,445 over the amount collected in 1885.

At a meeting of the Aqueduct Commission held February 7, it was at last definitely decided to build the great Quaker Bridge Dam, which has been so long in contemplation. It is to be 277 feet high from the bottom of the foundation and 1,500 feet long, and the estimated cost of the dam and its appurtenances is $4,027,600. The whole project, including the purchase of 4,000 acres of land, will involve an estimated expenditure of $6,743,100. The report in favor of the construction of the dam, which was signed by six of the seven Aqueduct Commissioners, was presented by Mr. Barnes, chairman of the committee on construction, and in it reference was made to the fact that some of the best hydraulic engineers

of modern times have indorsed the Quaker Bridge Dam project, and that the opposition to its construction came from only a few of the many taxpayers of the city, and from some engineers who were not usually considered of the highest rank. Gen. Newton reinforced the majority report by a supplemental statement favoring the project as the best one for obtaining a requisite supply of water for the increasing population of the city. In a minority report which was signed alone by Mr. Spencer, President of the Commission, it was claimed that the dam, besides entailing an expense of over $10,000,000, would enclose an enormous amount of water which could not be distributed through the aqueduct in a thoroughly pure condition. In answer to this sanitary point against the construction of the dam, a letter was read from Prof. Charles F. Chandler, for many years President of the Metropolitan Board of Health, commending the project, and denying that the water drained from the lake formed by the dam would be impure.

Including the capacity of the Muscoot reservoir, 2,500,000,000 gallons, and the Croton reservoir, 1,500,000,000 gallons, the new dam will make a reservoir of 38,377,935,000 gallons. When completed it will constitute the most stupendous piece of engineering of the kind ever attempted in the history of the world, and the great American Eagle will once more have an opportunity of flapping his wings over the diminished heads of the effete monarchies of Europe and all the rest of creation.

In the recently published seventeenth annual report of the Manhattan Eye and Ear Hospital, which now occupies the beautiful new building erected for it on Park Avenue, near the Grand Central Depot, are to be found some facts of special interest. From it we learn that constant and vigilant efforts are to be made to exclude from the benefits of the hospital all who are not, by reason of poverty, deserving of gratuitous care. A registrar occupies a desk near the door, and asks the following, among other searching questions, of every applicant for treatment:

"How much money have you in savings or other bank?"

"How many persons are dependent on you for support?"

"How much rent do you pay?"

"Can you afford to pay anything for medical advice?"

During the year just past 259 applicants were rejected after such inquiries, having acknowledged that they were able to pay. Moreover, after such inquiries have been made and satisfactorily answered, the beneficiaries or their friends are asked to contribute what they can to the treasury of the hospital; and it is of interest to learn that during the past year there was contributed by the acknowledged poor beneficiaries the sum of $6,614. All the money thus received was expended for the benefit of the hospital and dispensary patients.

The report contains a diâgram which gives in graphic form a digest of the 48,509 consecutive eye cases treated in the institution. In this it is noticed that the first two columns are much larger than any others. The first and largest column represents the relative proportion of diseases of the conjunctiva, and the second, the relative proportion of diseases of the cornea; and together the two columns include 51.5 of the total number of cases treated. The forceful value of these facts, the report goes on to say, will be better apprehended if we remember that the majority of the affections of the conjunctiva are either communicable or preventable, or both; as is true also, within somewhat more restricted limits, of the diseases of the cornea. Indeed, very many of the diseases indicated by the two columns under consideration are filth diseases, exterminable by proper hygienic precautions. Thousands of victims of communicable, preventable eye diseases have been found in times past in the residential schools and asylums of New York and its vicinity, as well as in other large centres of population, and have gone to make up the vast *clièntele* of such institutions as the Manhattan Hospital. The medical board of this institution is a unit in believing that the faithful administration of the law entitled "An Act for the Better Preservation of the Health of Children in Institutions," which was enacted by the New York Legislature last year, will most sensibly lessen the prevalence of these diseases, which are so fatal to vision and so productive of chronic and irreparable pauperism. In this connection the Board of Managers feel constrained to call attention to the fact, however humiliating it may be, that so far as the statistics of the Manhattan Hospital go, American pauperism is relatively rapidly increasing; since of the 9,179 patients treated during the year, 5,586 are recorded as natives of the United States.

The eighty-first annual meeting of the Medical Society of the State of New York was held in Albany the first week in February, and was largely attended. The Merrit H. Cash prize was awarded to Dr. A. N. Bell, of Brooklyn, editor of *The Sanitarian*, for his essay on "Physiological Conditions and Sanitary Requirements of School Life and School-houses." The subject of the President's annual address was "The Achievements in Science and Letters of Men who have been Connected with the Medical Profession," and was delivered by Dr. Ely in the Assembly Chamber at the Capitol. Dr. Alfred L. Loomis, of this city, was chosen President, and Dr. A. M. Phelps, of Chateaugay, Vice-President, for the ensuing year.

P. B. P.

"THE ETIOLOGY AND CURE OF ASTHMA."

Dear Sir:—In the issue of THE JOURNAL for January 29, appeared a short article under the above heading by Dr. Kuh, which is liable to mislead those not familiar with the subject.

1. With reference to the parts which the turbinated bodies bear in the etiology of asthma, the author attributes the discovery to Wilhelm Hack, and inveighs against specialists because they do not give him the credit. The fact is, that the attention of the profession was first directed to this matter by a paper read before the American Laryngological Associa-

tion in May, 1881, by Dr. William H. Daly, of Pittsburg.

Hack's articles on the subject did not appear until many months later in the *Berliner Klin. Wochenschrift*, of 1882, and in his monograph, 1883; therefore, Hack was not the discoverer, and would only ask for the honor of a place among many other faithful workers in this field.

2. In the article referred to, it is claimed that nearly all cases of asthma are the result of disease in the nasal cavities. On the contrary all laryngologists know that only a small percentage of them are so caused.

3 It is also claimed that cauterization of the nasal mucous membrane will cure the majority of cases of asthma; whereas experience shows that it will benefit only a small percentage of them. With reference to the after effects of cauterization some discussion followed the reading of the paper, but it was not sufficient to make the matter clear. By experience we have found that the amount of discomfort following the operation is dependent on the idiosyncrasies of the patient, the present condition of his system as indicated by the rapidity with which wounds heal, his subsequent exposure, and the extent of the burn.

There are some individuals, who from inexplicable causes, suffer pain or develop fever from wounds which would not annoy the majority of mankind, and these are likely to have much discomfort after cauterization.

Under certain, not well-defined conditions, small wounds heal very slowly on some in whom at other times cicitrization would be rapid. In such conditions a small burn which would ordinarily cause no inconvenience may be a long time in healing. Patients who are exposed after the cauterization sometimes, in popular parlance, "take a cold," and as a result a wound which would otherwise have healed rapidly may be a long time in closing, and inflammation may extend from it to neighboring parts.

In order to guard against these unpleasant results, care must be exercised not to cauterize too much tissue at one sitting. I have never known serious complications, or great discomfort to follow a single linear cauterization the whole length of the turbinated body, or a superficial cauterization nearly as large as a nickel; therefore wounds of this size may be made when the patient is pressed for time, or when he prefers some discomfort to a second visit to the doctor's office. In no case, however, should the cauterization be more extensive, because of the danger of facial erysipelas, and other unpleasant results. Whenever time and circumstances permit it will be found better to make a linear cauterization of not more than one half the length of the turbinated body, or superficial cauterizations not more than an inch in diameter. If these precautions are followed, the author's statement that there is no noteworthy complication after the operation will be fully verified.

Truly yours,

E. FLETCHER INGALS, M.D.

64 State St., Chicago, Feb. 16, 1887.

MISCELLANEOUS.

NECROLOGICAL.—Dr. B. F. Hardy died in San Francisco, November 22, 1886, of diabetes. He was a physician of more than ordinary education and professional skill, and has been a member of the American Medical Association since 1871. He leaves a wife and two little daughters to mourn his early departure. But of him could be said, "He followed virtue as his truest guide; he lived as a Christian, and as a Christian died."

DIED—January 9, 1887, in Milton, Ind., Dr. Joel Pennington, aged 88 years. At the time of his death he was the oldest practicing physician in Wayne County. He became a member of the American Medical Association in 1850. Through all his long professional life he enjoyed the confidence and esteem of both the community and the members of the profession who knew him.

EMIN PASHA, for whose relief Mr. Henry M. Stanley recently left England for Equatorial Africa, is no less a man than the celebrated Dr. Hermann Schnitzler, better known as Emin Bey, and Surgeon-General of the Equatorial Provinces under Chinese Gordon. He succeeded Gordon in the governorship, and has been engaged in bringing a barbarous region into a state of civilization. He has now been shut off from the outer world for three years by the barbarians to the north of him. He is a great linguist, and in addition to his medical learning has an intimate acquaintance with geology, botany, meteorology, anthropology, geography, etc. The little leisure which he has had for the past five years has been devoted to the sick.

THE SPRINGFIELD, MASS., CITY HOSPITAL has had bequeathed to it, in the will of the late Mr. Wm. Merrick, between $75,000 and $100,000.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 12, 1887, TO FEBRUARY 18, 1887.

Lt.-Col. Jos. R. Smith, Surgeon, detailed, in addition to his present duties, as President of the Army Medical Board in New York City, N. Y. S. O. 38, A. G. O., Feb. 15, 1887.

Major W. S. Tremaine, Surgeon, sick leave of absence still further extended four months on surgeon's certificate of disability. S. O. 39, A. G. O., Feb. 16, 1887.

Capt. Geo. McCreery, Asst. Surgeon, granted leave of absence for one month, with permission to apply for one month's extension. S. O. 35, A. G. O., Feb 11, 1887.

Capt. Arthur W. Taylor, Asst. Surgeon, relieved from duty at Camp Medicine Butte, Wyo., and ordered for duty at Ft. Laramie, Wyo. S. O. 14, Dept. Platte, Feb. 12, 1887.

Capt. M. C. Wyeth, Asst. Surgeon, ordered from Ft. Wayne, Mich., to Ft. Barrancas, Fla. S. O. 39, A. G. O., Feb. 16, 1887.

First Lieut. J. Wakeman, Asst. Surgeon, relieved from duty in Dept. Platte, to take effect on the expiration of his present leave of absence, and ordered for duty at Ft. Walla Walla, Wash. Ter. S. O. 36, A. G. O., Feb. 12, 1887.

First Lieut. Edward A. Morris, Asst. Surgeon, leave of absence extended twenty days. S. O. 35, A. G. O., Feb. 11, 1887.

First Lieut. H. S. T. Harris, Asst. Surgeon, ordered from Ft. Clark, Texas, to Ft. Ringgold, Texas. S. O. 16, Dept. Tex., Jan. 31, 1887.